JULY, 1908. Vol. LII. No. 365.

JOURNAL

OF THE

Royal United Service Institution.

PUBLISHED UNDER THE AUTHORITY OF THE COUNCIL.

Editor - Captain H. Garbett, R.N. (Retired).

All communications (except those for perusal by the Editor only) to be addressed to the Secretary, Royal United Service Institution.

LONDON:

The Royal United Service Institution,

WHITEHALL, S.W.

Telegraphic Address: "RUSSATUS, LONDON."

Printed by J. J. KELIHER & CO., LIMITED, 32, New Bridge Street, E.C., and 33, King William Street, E.C.

Sole Advertisement Contractor: Mr. C. GILBERT-WOOD, Dacre House, Arundel Street, Strand, London, W.C.
Telegraphic Address: "GILBERWOOD, LONDON."

All rights reserved.

Price Two Shillings.

THE ELITE OF HAIR TONICS.

JAVOL

Best Hair Dressing for Daily Use.

Every Officer likes to have his Hair neat and well groomed, and there is nothing to equal JAVOL for this purpose. It Strengthens, Preserves and Nourishes the Hair and is delightful to use. It is a reliable article for every day use and is largely used by the Best People.

1/- COUPON

Entitles bearer to a 2/- flask of JAVOL for trial at 1/- on presentation to any Chemist —failing him, send P.O. 1/- direct. 69

In Flasks, **5/6, 3/- & 2/-.**

Javol Shampoo, **3d. & 1/-** (box of **5**)

Of all Chemists.

LAMONT, CORLISS & Co., 11, QUEEN VICTORIA STREET, LONDON, E.C.

JUST PUBLISHED. "Lest we Forget." **2s. 6d. net.**

"DEFENDERS OF OUR EMPIRE."

THE NATION'S HEROES.

DEUM COLE, REGEM SERVA.

Containing 12 Biographies in each issue, with Autograph Portraits to each.

No. 1 of this invaluable and comprehensive Work will appear on or about **July 25th, 1908,** and will be handsomely illustrated with full-page Portraiture Plates, and a fac-simile of every Officer's Autograph below his Portrait.

Edited by C. GILBERT-WOOD, F.R.G.S.

Assisted by Colonel HAROLD C. WYLLY, C.B., and Commander W. F. CABORNE, C.B., R.N.R.

The First issue will contain:—H.R.H. The Duke of Connaught, Field-Marshal Viscount Wolseley, Field-Marshal The Earl Roberts, Admiral Lord Walter Talbot Kerr, Admiral Sir John C. Dalrymple Hay, Bt., General Sir John D P. French, Admiral Lord Charles Beresford, General Sir W. G. Nicholson, Lieut.-General R. S. S. Baden-Powell, Lieut.-General Sir Arthur H. Paget, Colonel F. Hasket-Thompson, Colonel Aylmer L. Haldane, Colonel Sir Percy Girouard.

FURTHER PARTICULARS AS TO FUTURE CONTENTS, Etc., WILL BE PUBLISHED IN DUE COURSE.

A portion of the profits accruing from the sale of this handsome and comprehensive work will be handed over to Field-Marshal The Rt. Hon. Earl Roberts, V.C., K.G., who has kindly consented to accept same on behalf of his "Veterans' Fund."

Annual Subscription 10s. 6d. post free.

"Should be read by all who love their country." Should be in the hands of every Public School boy to inculcate the lesson that "Lives of Great Men all remind us We can make our lives Sublime."

——PUBLISHED QUARTERLY, PRICE 2s. 6d. NET, POSTAGE 4d. EXTRA.——

Special Terms for Quantities to Schools, Colleges, and other Public Institutions.

London: THE NAVAL & MILITARY PRESS, 5 & 3, Arundel Street, Strand, HUGH REES, Ltd., 119, Pall Mall, and Camberley.

LIPTONS

The Largest Tea and Provision Dealers in the World.

MANAGEMENT OF CANTEENS A SPECIALITY.

TERMS, PRICES, REBATES, &c., ON APPLICATION.

ALDERSHOT—Elms Road.
PORTSEA—35, Queen Street.
DEVONPORT—Holman's Buildings.
DUBLIN—23, Merchant's Quay.
GIBRALTAR—Grand Hotel Buildings.
MALTA—39, Strada Reale, Valletta.
ALEXANDRIA—Boulevard de Ramleh.
CALCUTTA—32/1, Dalhousie Square.
COLOMBO—Prince Street.
BOMBAY—14, Hummum Street.

Head Offices—CITY ROAD, LONDON.

Telegraphic Address
"RUSSATUS, LONDON"

CONTENTS FOR JULY, 1908.

1. PORTRAITS OF MAJOR-GENERAL JAMES WOLFE AND THE MARQUIS DE MONTCALM.
2. SECRETARY'S NOTES 893
3. THE DISTRIBUTION AND SUPPLY OF AMMUNITION ON THE BATTLE-FIELD. COLONEL F. D. V. WING, C.B., R.A. (*Lecture*) 895
4. THE HEAVY ARTILLERY OF A FIELD ARMY: A COMPARISON. COLONEL F. G. STONE, *p.s.c.* 925
5. MODERN METHODS OF MILITARY ORGANISATION. LIEUT-GENERAL F. H. TYRRELL, INDIAN ARMY, COLONEL 74TH PUNJABIS 936
6. STUDIES IN APPLIED TACTICS. CAVALRY IN BATTLE (15TH AND 16TH AUGUST, 1870). P. LEHAUTCOURT. TRANSLATED BY PERMISSION FROM "LE JOURNAL DES SCIENCES MILITAIRES," BY MAJOR E. MAKINS, D.S.O., 1ST ROYAL DRAGOONS (*continued*) 948
7. ARTILLERY DEVELOPMENT IN THE UNITED STATES NAVY. BATTLE PRACTICE IN 1907. EXTRACT FROM AN ARTICLE IN THE "MARINE-RUNDSCHAU" FOR MAY, 1908 957
8. PACK ARTILLERY AND THE CLOSE SUPPORT OF THE INFANTRY ATTACK. MAJOR K. K. KNAPP, R.G.A. 963
9. THE SERVICE OF COMMUNICATION IN THE LIGHT OF THE EXPERIENCE OF THE RUSSO-JAPANESE WAR. TRANSLATED FROM THE "RUSSKI INVALID" OF 22ND MARCH, 1908. COMMUNICATED BY THE GENERAL STAFF 968
10. NAVAL NOTES 971
11. MILITARY NOTES 982
12. NAVAL AND MILITARY CALENDAR FOR JUNE, 1908 992
13. CONTENTS OF FOREIGN PERIODICALS FOR JUNE, 1908 992
14. NOTICES OF BOOKS 1000
15. PRINCIPAL ADDITIONS TO LIBRARY DURING JUNE, 1908 1000
16. RECENT PUBLICATIONS OF MILITARY INTEREST 1002

OPTIONS ON THE FRENCH METHOD

FOR THIRTY DAYS.

Only **7/6** per **£100** Stock on BRITISH RAILS quoted over **£50.**
Only **$1** per share on AMERICAN AND CANADIAN RAILS.

The above rates represent total payment and liability.

OPTION MONEY RETURNED WITH PROFITS.

For full list and particulars apply to—

The Central Stock Exchange, Ltd. (Established 1893)
66, CANNON STREET, LONDON, E.C.

Laying for Line with Tangent Sight and Gun Arc.

DUMMY TRIPOD GUN

AS SUPPLIED TO
5th LONDON BDE.,
R.F.A.

WRITE FOR FULL
PARTICULARS TO

GRAHAM & LATHAM (LATE OF THE MORRIS AIMING TUBE AND AMMUNITION CO., LTD.)

CECIL COURT, CHARING CROSS RD.

SPECIALISTS IN PRACTICE SYSTEMS FOR ORDNANCE AND SMALL ARMS.

GERMAN WAR OFFICE INVESTIGATIONS.

RE

THE TREATMENT of POLLUTED WATER.

The recommendations of the MEDICAL DEPARTMENT are embodied in the

HARTMANN STERILISERS

WHICH ARE

EXTENSIVELY USED

BY THE

GERMAN MILITARY AUTHORITIES

at Home and abroad.

An ILLUSTRATED BOOKLET dealing with the above and its application in the GERMAN ARMY sent free upon receipt of card to

LUDW. LOEWE & CO., LTD.,

Farringdon Road (opp. 109),

LONDON, E.C.

ROYAL UNITED SERVICE INSTITUTION.

PRESIDENT.

Field-Marshal H.R.H. The DUKE OF CONNAUGHT, K.G.

VICE-PRESIDENTS.

Admiral *Rt. Hon. Sir* J. C. DALRYMPLE-HAY, Bart., G.C.B., D.C.L., F.R.S.
General *Sir* F. C. A. STEPHENSON, G.C.B., Constable of the Tower.
Lieut-Colonel T. H. BAYLIS (K.C., M.A.), VD, late 18th Middlesex V.R.C.
Field-Marshal the *Viscount* WOLSELEY, K.P., G.C.B., O.M., G.C.M.G. 1905)..
Field-Marshal *Right Hon.* the *Earl* ROBERTS, VC., K.G., K.P., G.C.B., O.M., G.C.S.I., G.C.I.E., VD. (1905).
Rear-Admiral *H.S.H. Prince* Louis of BATTENBERG, G.C.B., G.C.V.O., K.C.M.G., A.D.C. (1906).

CHAIRMAN.

Admiral of the Fleet the *Lord* WALTER KERR, G.C.B.

VICE-CHAIRMAN.

Lieut.-General H. D. HUTCHINSON, C.S.I.

MEMBERS OF THE COUNCIL.

Lieut.-General R. S. S. BADEN-POWELL C.B. Commanding Northumbrian Division Territorial Force
Colonel J. H. BOR, C.M.G., R.M.A., A.D.C., A.A.G. Royal Marines, Extra Equerry to H.R.H. The Prince of Wales.
Commander W. F. CABORNE, C.B., Royal Naval Reserve.
Vice-Admiral *sir* C. CAMPBELL, K.C.M.G., C.B., D.S.O.
Colonel T. S. CAVE, V.D., Commanding South Midland Brigade, Territorial Force, late 1st V.B. Hampshire Regiment.
Colonel R. B. COLVIN, C.B., Essex Yeomanry.
Brigadier-General C. G. DONALD, C.B., Commanding Home Counties Division, Territorial Force.
Rear-Admiral A. M. FIELD, F.R.S., Hydrographer of the Navy.
Major-General *Sir* T. FRASER, K.C.B., C.M.G.
Lieut.-Colonel *Honble.* T. F. FREMANTLE, V.D., The Buckinghamshire Battalion, Territorial Force.
Colonel LONSDALE A. HALE, late R.E.
Colonel J. A. L. HALDANE, C.B., D.S.O., A.D.M.O., War Office.
Colonel the *Viscount* HARDINGE, 7th Bn. the Rifle Brigade.
Colonel W. A. HILL, C.B., late 3rd Bn. The Gloucestershire Regiment.
Colonel W. C. HORSLEY, V.D., 28th Bn. The County of London Regiment.
Colonel *Honble.* O. V. G. A. LUMLEY, Commanding 2nd South Midland Mounted Brigade, Territorial Force.
Lieutenant G. R. MALTBY, M.V.O., R.N. (retired).
Major-General *Sir* G. H. MARSHALL, K.C.B.
Colonel F. I. MAXSE, C.V.O., C.B., D.S.O., Commanding the Coldstream Guards and 3rd London Brigade, Territorial Force.
Admiral *Sir* G. H. U. NOEL, K.C.B., K.C.M.G., Commander-in Chief the Nore.
Captain E. J. W. SLADE, M.V.O., A.D.C., R.N., Director of Naval Intelligence.
Brigadier-General H. H. WILSON, D.S.O., Commandant of the Staff College.

Secretary and Curator.

Lieut.-Colonel A. LEETHAM, Royal Monmouthshire Royal Engineers (Militia), late 13th Hussars.

Editor and Librarian.

Captain H. J. G. GARBETT, R.N. (retired).

Assistant Editor and Librarian.

Major C. H. WYLLY, late 1st Bn. South Staffordshire Regiment.

Assistant Secretary and Curator.

Lieutenant H. S. SARGEAUNT, 12th Bn. The County of London Regiment

Auditors.

Messrs. WILDE & FERGUSON DAVIE, Chartered Accountants, 61½, Fore Street, E.C.

The undermentioned can become members by intimating their wish to the Secretary, and either forwarding to him their subscription, or giving him a written authority on their bankers or agents for its payment:—Commissioned officers of the Royal Navy, Regular Army, Royal Marines, Militia, Indian and Colonial Naval and Military Forces, Imperial Yeomanry, Royal Naval Reserve, Volunteer Corps, and Cadet Battalions and Corps, as published in the Official Navy and Army Lists, together with retired officers of the same whose names are retained in the Navy or Army Lists, and Naval Cadets, and Cadets of the Royal Military Academy, Woolwich, Royal Military College, Sandhurst, and Royal Military College, Kingston, Canada, on the recommendation of their commanding officers.

Officers retired from the various Services enumerated above, whose names do not appear in the Navy or Army Lists, are eligible for election by ballot on the recommendation, on personal knowledge, of two members of the Institution.

The terms of subscription are:—

Annual. £1 1s 0d. entrance; and £1 1s. 0d. annual, payable on the 1st January each year.

Life. £15, payable in one sum.

Life. £15 15s., payable in three instalments of Five Guineas each; the first on joining the Institution, the others on the 1st January of each of the succeeding two years.

Members joining after the 1st October in any year are not called upon for any subscription the following year.

An extra payment of Ten Shillings entitles a member in the United Kingdom to the loan of Four Volumes at a time from the Library for a period of twelve months from the date of the subscription.

When a member desires to pay his subscription through his banker or agent, he should send to the Secretary a written authority as follows:—

To (Banker or Agents)

On receipt of this order please pay to Secretary, Royal United Service Institution, or order, my subscription to that Institution (according to the terms above).

Name in full.

Rank, Ship, or Regiment.

Address to which Journals and other communications should be sent.

The name of any member who fails to pay his annual subscription for two years is removed from the List of Members, but the member may be re-admitted as a new member on the usual terms.

Members of the United Service Institution of India on leave to the United Kingdom, and officers of the Colonial Naval and Military Forces who are temporarily in this country on duty, can become temporary members, and make use of the Institution on payment of Five Shillings per six months.

The Institution contains the best professional Library in the United Kingdom; an excellent collection of Maps and Charts; Reading and Smoking Rooms provided with the leading papers, periodicals, and writing materials; an interesting Museum; and a Theatre in which lectures upon professional subjects, followed by discussion, are frequently given.

The Journal, published monthly, is sent post free to all members. It contains the lectures given in the Theatre, articles on professional subjects, naval and military notes, book notices, &c.

NAVAL AND MILITARY BUSINESS DIRECTORY.

(By special appointment to H.R.H. the Prince of Wales).

JONES, CHALK & DAWSON,

TAILORS & MILITARY OUTFITTERS,

6, Sackville Street, London, W.

THE GILBERT-WOOD PRESS.

Newspaper Proprietors, Publishers, Lithographic & Letterpress Printers, and Advertisement Contractors.

5 & 3, ARUNDEL STREET, LONDON, W.C.

SOLE Advertisement Contractors to this Journal and also to most other Official Service Publications.

Telegrams: GILBERWOOD, LONDON. Telephone: 4680 Gerrard.

SCHOOL OUTFITS Suits Overcoats Shirts Underwear

SAMUEL BROTHERS, LTD.,

65 & 67, Ludgate Hill, London, E.C.

ESTABLISHED SEVENTY YEARS.

MR. GLADSTONE, M.A. (Oxon.)

ARMY TUTOR,

90a, GLOUCESTER ROAD, SOUTH KENSINGTON.

NAVAL AND MILITARY PUBLICATIONS.

"THE CAVALRY JOURNAL."

PUBLISHED QUARTERLY.

JANUARY, APRIL, JULY and OCTOBER.

Price 2s. 6d. Net.

C. GILBERT-WOOD, Arundel Street, W.C.

R.U.S.I. "JOURNAL" INDEX.

An index to Subjects and names of Authors appearing in the JOURNAL from 1887 to 1906 (Vols. XXXI. to L.) has been compiled, and may be obtained at a cost of one shilling (inclusive of postage) on application to the Secretary, Royal United Service Institution, Whitehall, S.W.

United Service Gazette.

(WEEKLY.)

The Journal of His Majesty's Forces.

THE OLDEST SERVICE PAPER.

Established 1833.

Price 6d. Postage ½d.

"The Royal Engineers' Journal."

Monthly. Price 1s. 6d. net.

May issue now ready.

LONDON:

C. GILBERT-WOOD, 5, Arundel Street, W.C.

CHATHAM: ROYAL ENGINEERS' INSTITUTE.

NAVAL AND MILITARY HOTEL DIRECTORY.

BIRNAM HOTEL, BIRNAM,
PERTHSHIRE, N.B.
(Two minutes' walk from Birnam and Dunkeld Station.
HIGH-CLASS FAMILY HOTEL
Tariff Moderate. Pure, bracing air. Finest Scenery in Scotland. Good Salmon and Trout Fishing free. Golf Course adjoins Hotel Grounds. Good Garage and Inspection Pit.

THE LAKES OF KILLARNEY.
The Royal Victoria Hotel.
ESTABLISHED 1820.
Lighted throughout by its own Private Electric Plant.

LUXURY. COMFORT. ECONOMY.
The Hotel Russell. :: Russell Square, W.C.
Provides for visitors to town the most **convenient, comfortable** and **economical** place of stay.
The Frederick Hotels, Ltd., Proprietors.

NAVAL AND MILITARY SOCIETIES AND CHARITIES.

MARINE SOCIETY.
TRAINING SHIP "WARSPITE,"
PATRON - - H.M. THE KING.
The Society, which maintains the Training Ship "Warspite" at Greenhithe, is supported by Voluntary Contributions.
Annual Subscriptions and Donations gratefully received by the Secretary, Lieut. H. T. A. BOSANQUET, R.N., Clarks Place, Bishopsgate Street, E.C.

Dr. Barnardo's Homes:
National Incorporated Association.
FUNDS URGENTLY NEEDED.
18-26, STEPNEY CAUSEWAY, E.

THE SOLDIERS' AND SAILORS' FAMILIES ASSOCIATION.
To help the Wives and Families — of Soldiers and Sailors. —
Secretary, 23, Queen Anne's Gate, S.W.

A NATIONAL WORK.
Church of England Waifs and Strays Society,
NEEDS AND PLEADS FOR HELP.
Secretary: Savoy Street, W.C.

The National Refuges for Homeless & Destitute Children,
AND
"Arethusa" & "Chichester" Training Ships.
FUNDS NEEDED.
164, SHAFTESBURY AVENUE, W.C.

The Royal Army Temperance Association.
The Association consists of Soldiers of all ranks and denominations, united for the promotion of sobriety in the British Army at home and abroad.
47, VICTORIA STREET, S.W.

NAVAL AND MILITARY MUSEUMS, &c.

ROYAL UNITED SERVICE MUSEUM
WHITEHALL.
This Museum, with the restored Rubens' Ceiling, and entirely rearranged, has now been re-opened to the Public.

GREENWICH HOSPITAL.
THE PAINTED HALL,
NELSON'S RELICS, &c.
NAVAL MUSEUM, interesting collection of Models, &c.
OPEN DAILY, 10 till 4.

Mr. E. Carlisle, M.A. (Cantab.),

AND

Major M. H. Gregson, late R.E.

Prepare Candidates for the Navy and all Army and Civil Service Examinations, at

5 & 7, LEXHAM GARDENS, KENSINGTON, W.

We have retained the services of all the Tutors who have been so remarkably successful in past years, and continue to receive both Resident and Non-Resident Candidates.

Recent Successes include:

STAFF COLLEGE, AUGUST, 1907.

The following Officers, whose names are arranged in regimental order, were successful from us at the recent Competitive Examination for admission to the Staff College.

Capt. J. S. Cawley, 20th Hussars.
„ E. M. Birch, D.S.O., Royal Field Artillery.
„ P. W. Game, Royal Horse Artillery.
„ and Brevet-Major C. B. Thompson, Royal Engineers.
„ R. Ommanney, Royal Engineers.
Lieut. G. P. Dawnay, M.V.O., D.S.O., Coldstream Guards.
Capt. W. Drysdale, Royal Scots.
„ G. H. B. Freeth, D.S.O., Lancashire Fusiliers.
„ R. S. Allen, Lancashire Fusiliers.
„ B. H. Chetwynd-Stapylton, Cheshire Regiment.
„ A. Crookenden, Cheshire Regiment.
„ and Brevet-Major I. Stewart, Scottish Rifles.
Lieut. H. Needham, Gloucestershire Regiment.
Capt. E. R. Clayton, Oxfordshire Light Infantry.
Capt. J. C. H. Newman, Essex Regiment.
„ L. A. E. Price-Davies, V.C., D.S.O., King's Royal Rifle Corps.
„ W. E. Davies, Rifle Brigade.
„ L. R. Vaughan, Indian Army.
„ J. Brough, Royal Marine Artillery.

And the following Officers received nominations:

Capt. the Hon. C. H. C. Guest, 1st Dragoons.
„ and Brevet-Major E. D. Lord Loch M.V.O., D.S.O., Grenadier Guards.
„ R. H. Mangles, D.S.O., Royal West Surrey Regiment.
„ H. W. Grubb, Border Regiment.
„ G. N. Cory, D.S.O., Royal Dublin Fusiliers.
„ G. D. Bruce, Indian Army.

NOVEMBER, 1907.

WOOLWICH.

Third	...	F. N. M. Mason	7,441
Fifth	...	E. J. Moorhead	7,236
Sixth	...	C. W. R. Tuke	7,166
24th	...	J. R. Pinsent	6,493
27th	...	H. W. Crippin	6,411
32nd	...	L. H. King-Harman ...	6,372
35th	...	R. B. Pargiter	6,339

This is the second time in two years we have passed **three** out of the first **six** for Woolwich.

SANDHURST.

12th	...	C. W. Maxwell	5,172
13th	...	R. C. Money	5,169
27th	...	C. T. Ellison	4,912
38th	...	B. C. H. Keenlyside ...	4,644

CAVALRY.

7th	...	A. M. Sassoon	3,481

WEST INDIA.

Second	...	F. T. Hughes	4,331

INDIAN POLICE, JUNE, 1907.

Third	...	F. W. Toms	6,886
27th	...	H. W. Waite	5,980

ARMY QUALIFYING, MARCH, 1908.

SIX WERE SUCCESSFUL FROM US.

MILITIA COMPETITIVE EXAMINATION, MARCH, 1908.

Douglas Scott, Kent Artillery.
D. G. Gunn, 3rd P.W.O. West Yorkshire Regt.
A. L. Cooper Key, 5th Middlesex Regiment.
W. C. Loder Symonds, Lancashire Fd. Artillery.
R. G. Atkinson, West Surrey Regiment.
R. W. Leach, Cambridge Volunteers.
G. W. Courtney, Cork R.G.A.

"Country Life, pure, natural and good."
—*William Cowper.*

"COUNTRY LIFE"

A Smoking Mixture of the highest class and of exceptional quality.

SMOKING MIXTURE

"Undoubtedly the most successful Brand of modern times."

Sold in Two Strengths:

MILD	MEDIUM
5D. per oz.	4½D. per oz.

Manufactured by the Proprietors of Player's "Navy Cut," Nottingham.

The Journal of the Royal Artillery.

THIS Journal, which was formerly known as the "Proceedings" of the R.A. Institution, contains articles and information on Artillery matters, some highly technical and some general. Articles on general Military topics also appear.

In the Translations and Précis, which are an important feature, an attempt is made to keep up with the progress of Artillery on the Continent.

All members of the Royal Artillery Institution receive the Journal.

Any officer serving in the Navy, Army, Militia, Imperial Yeomanry, Volunteers and Colonial Permanent Forces can receive this Journal post free on application to the Secretary, R.A. Institution, at an annual subscription of 20*s.*

WOOLWICH: ROYAL ARTILLERY INSTITUTION.

Single Copies, price 2*s.* 6*d. each, postage extra.*

Sole Advertisement Contractor, C. Gilbert-Wood, Dacre House and Granville House, Arundel Street, Strand, W.C.

Telegrams:—"GILBERWOOD, LONDON." *Telephone*:—4680 Gerrard.

DALLMEYER'S
NEW PRISMATIC BINOCULARS

"The Service."

For Naval and Military Officers and Sportsmen.

For Travellers, Naturalists, and for Theatre use.

Patent.

Showing "Service" Binocular with outer cover removed for cleaning prisms.

LIGHTNESS.—They weigh about 2 oz. less than any other glasses of similar power.

DURABILITY.—Prisms fixed in rigid frame can be easily adjusted if necessary, although it is practically impossible for them to get out of alignment.

CONVENIENCE.—Can be focussed, adjusted, &c., while holding in one hand.

Illustrated Booklet Free on application.

J. H. DALLMEYER, Ltd., 25, Newman St., London, W.

THE
GOLDSMITHS & SILVERSMITHS COMPANY, Ltd.,

Only London Address } **112, REGENT STREET, W.**

Sterling Silver Table Ware.

MOST BEAUTIFUL DESIGNS.

PERFECTION OF WORKMANSHIP.

HIGHEST QUALITY.

VALUE BEYOND COMPETITION.

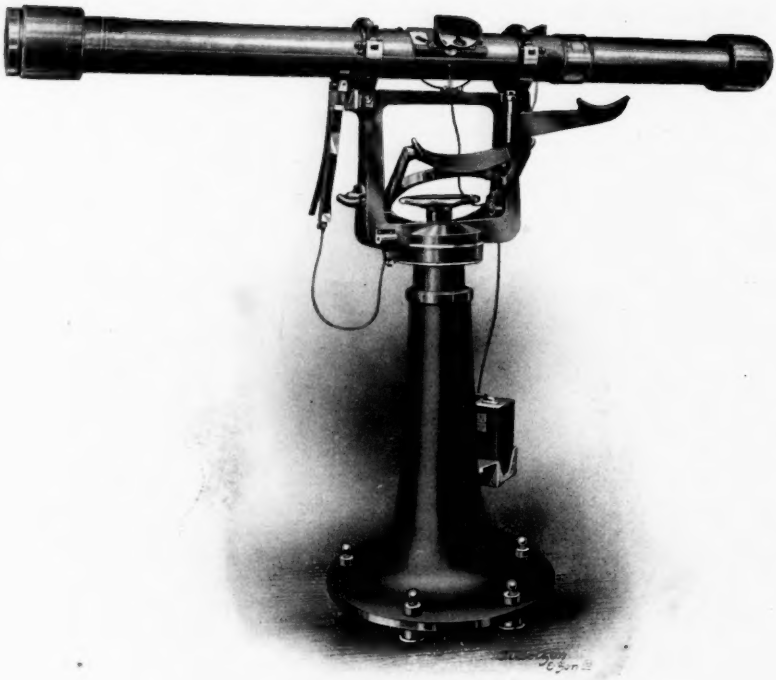
Illustrated Catalogue post free on application.

Wedding Presents, Mess Plate, &c.

"The Company have taken the leading position in the trade, and their great success and increasing business in all parts of the world are attributable to the admirable principles upon which their business is conducted."

Selections of Goods sent on Approval, carriage paid.

THE
GOLDSMITHS & SILVERSMITHS COMPANY, Ltd.,
112, REGENT STREET, LONDON. W.



THE BARR AND STROUD RANGEFINDER.

F.Q. TYPE. 2 METRES (78 INCHES) BASE. ON MOUNTING N.M. TYPE.

Fitted with a brake for controlling the Rangefinder in azimuth in a sea-way.
For use on board large Battle-ships and Cruisers.

Approximate uncertainty of observation :—

1 yard at 1,000 yards.
45 yards at 6,000 yards.
120 yards at 10,000 yards.

BARR AND STROUD,
ANNIESLAND,
GLASGOW.

QUEBEC TERCENTENARY COMMEMORATION.

LOUIS JOSEPH MARQUIS DE MONTCALM.

Born 29th February, 1712; mortally wounded on the Plains of Abraham, 13th September, 1759; aged 47 years. From a painting by J. B. Mattè.

By permission of Messrs. Archibald Constable & Co., Ltd., from "The Fight with France for North America."

MAJOR-GENERAL JAMES WOLFE,

(After a sketch made by his Aide-de-Camp, Captain Hervey Smith, 15th Foot, at Quebec).

Major-General James Wolfe was born on the 2nd January, 1727, and was killed on the Plains of Abraham on the 13th September, 1759, aged 32 years. The portrait passed through the hands of Wolfe's Aide-de-Camp, Colonel Guillim, and others to His Grace Hugh Percy, Duke of Northumberland, by whom it was given to the Royal United Service Museum, where it may now be seen.

J. J. K. & Co., Limited, London.

THE JOURNAL

OF THE

ROYAL UNITED SERVICE INSTITUTION.

VOL. LII. JULY, 1908. No. 365.

[*Authors alone are responsible for the contents of their respective Papers*]

SECRETARY'S NOTES.

I. OFFICERS JOINED.

The following Officers joined the Institution during the month of June :—

Lieutenant P. T. Etherton, Indian Army.
Captain E. F. Calthrop, R.F.A.
C. Bright, Esq., F.R.S.E., late Second-Lieutenant 3rd Battalion Middlesex Regiment.
Lieutenant H. C. Dobbs, Indian Army.
Lieutenant W. J. Maule, Essex Regiment.
Colonel the Earl of Albemarle, C.B., M.V.O., A.D.C., 2nd V.B. Norfolk Regiment.
Lieut.-Colonel C. W. Trotter, South Nottinghamshire Hussars.
Lieutenant T. G. Carter, R.N.
Second-Lieutenant J. L. Longstaffe, Lancashire R.F.A.
Captain R. H. Watson, Loyal N. Lancashire Regiment.

II. CLOSING OF THE BUILDING.

The Building will be closed for cleaning purposes from Monday, 3rd August, to Saturday, 15th August, inclusive. The Museum will be open as usual.

III. CORRESPONDENCE.

The Council desires to intimate that in future all the correspondence of the Institution, including that with reference to the Library, Lectures, and the JOURNAL (with the exception of those letters for perusal by the Editor only), should be addressed officially to the Secretary, and not to individual Members of the Staff by name.

IV. MEMBERSHIP.

The Council have pleasure in reporting that up to the end of June, the Membership shows an increase of 34. During the half year 136 Officers joined the Institution, the various branches of the Services being represented as follows:—

Regular Army	97
Royal Navy	16
Volunteers	11
Militia	5
Yeomanry	3
Royal Marines	2
R.N.R. and R.N.V.R.	2
Total	136

Sixty-six Members have died, of whom 20 were life Members, and 36 have resigned their membership.

It is hoped that Members will not relax their energy in the direction of introducing new Members.

V. LENDING LIBRARY.

Officers resident in the British Isles may borrow four volumes at a time from the Library on paying an extra subscription of ten shillings per annum. Further particulars will be sent on application.

VI. ADDITIONS TO THE MUSEUM.

i. Shoulder-belt Plates of the following Infantry Regiments:—32nd, 73rd, 74th, and 85th.—*Given by Lieut.-Colonel A. Leetham.*

ii. Bronze Medal, struck to commemorate "The Light Division Centenary, 1808-1908."—*Given by Colonel Ernest Villiers, A.D.C., late 43rd Light Infantry.*

iii. A French Infantry Officer's Brass Gorget, of the period of the First Republic.—*Given by Lieut.-Colonel A. Leetham.*

VII. MUSEUM REGISTRATION.

The registration of the contents of the Museum is now rapidly being completed, 3,315 exhibits having been catalogued and described. There only remain to be dealt with the Foreign and Experimental Fire Arms and the collection of Arms taken in the Indian Mutiny, it is hoped to complete these during the autumn.

The next edition of the Museum Catalogue will, therefore, contain a complete list and description of all the Exhibits.

THE DISTRIBUTION AND SUPPLY OF AMMUNITION ON THE BATTLE-FIELD.

By Colonel F. D. V. WING, C.B., R.A.

On Wednesday, March 18th, 1908.

Lieut.-General Sir H. L. SMITH-DORRIEN, K.C.B., D.S.O., Commanding-in-Chief, Aldershot Command, in the Chair.

AS far back as the Franco-German war, when the guns and rifles of that period had nothing like the power of rapid fire which they now possess, we read that German gunners often ran short of ammunition, and whilst waiting for a fresh supply used to sit on their guns and sing "Die Wacht am Rhein" till more was brought up.

The expenditure at that period gives no estimate for present needs, and one of the most marked developments of modern war is the very heavy expenditure of ammunition which now occurs owing to the increased range and rapidity of fire of modern rifles and guns, as well as the enlargement of the area of the battle-field, with the consequent increased time which battles occupy.

Hitherto the improvement in weapons has tended to drive the combatants to seek the shelter of deep entrenchments and to force them further apart. We may now have reached the point when the tactics of the future will be to approach as close as possible, unseen, by night operations or mining methods, and then to burst on the enemy at a close range that tornado of fire which is possible from modern weapons, and which is only limited by the ability to supply ammunition.

In the Manchurian campaign, which is our latest prototype for modern war, the battle of Liaoyang lasted for ten days, the fighting on the Shaho seven days, while that in the vicinity of Mukden continued for sixteen days.

Hence there is brought very forcibly to notice the great importance of the distribution and supply of ammunition on the battle-field, where we must be prepared to have at hand sufficient to meet a heavy expenditure for many days in succession.

There can be no doubt as to the importance of this question, as, though shock action for cavalry and bayonet fighting

for infantry may frequently be employed, the deciding factor in a battle under present conditions must be the fire combat. To achieve success in this, an ample supply of ammunition is the first necessity, not only to meet the wants of the moment, but also to ensure that no want of it may hinder progressive action.

When troops engage in battle, the side which first fails in ammunition has certain defeat in front of it.

The difficulties of replenishing ammunition include the necessity of conveying a large amount of heavy material in the wake of the army from the base to the fighting line.

Arrangements must be made that the reserves of ammunition, without actually accompanying the troops, may be pushed on when required along roads crowded perhaps by transport and reserves. Small-arm ammunition may have to be supplied to troops entrenched under heavy fire, or gun ammunition to guns in a position, the approach to which may be under fire of the enemy.

Supply of ammunition must be from the rear to the front, *i.e.*, full wagons must be in waiting ready to go forward as required, and fill up the empty ones in front; it will not do to rely for the next supply on empty wagons going back to be refilled. This system should be followed from the base of operations to the front.

To realise the magnitude of the task of supplying ammunition, we have only to examine such statistics as are available of the expenditure in the most recent wars.

The average expenditure varies, of course, considerably in different battles; but when once an action on a large scale has commenced, its duration and development must always be uncertain, and the only safe estimate for the ammunition which may be required must be based on an amount which approximates to the largest average which has been found to be necessary. Taking some instances from the late war in Manchuria, we find that at Liao-yang a Russian battalion fired 630 rounds of small-arm ammunition per man during five days' fighting. At seven successive days of battle on the Shaho, a battalion of the Russian Morshansk Regiment was stated to have fired 1,000 rounds per rifle, but I have not heard that this statement has been verified; and at the same fighting two Japanese regiments are said to have fired 680 rounds per man.

Such expenditures must be regarded as above the average, though they may be remembered as instances of amounts that may possibly be required.

In hot actions an occasional rate of 10 rounds per man per minute was considered not uncommon. At this rate 300 rounds per rifle would be expended in half an hour, and it is clear how forcibly the importance of supply of ammunition has been demonstrated by such cases.

Many instances are recorded of the want of small-arm ammunition at a critical period. It is said that the Russians were so deficient at the battle of Ta-shi-chiao, that had the Japanese

known their deficiency and pushed on they might have taken the position some weeks earlier than they actually did.

Instances are said to have occurred when the Japs and Russians expended all their cartridges and resorted to throwing stones at one another. Our most recent experience has shown the frequent want of ammunition, as well as what strenuous efforts are necessary to replenish it. Taking one or two instances from many which occurred in South Africa, there can be mentioned the siege of Wepener. Here it is related that the Cape Mounted Rifles, who were holding a prominent position in the line of defence, at ten o'clock in the morning of the 9th April, 1900, found their ammunition getting short, and that the only way to get a fresh supply was by running across the open for about 150 yards. This was the cause of many casualties, and in one case, when a party of six men made the attempt, only one returned safely to his trench.

Later in the war, at the attack on the post of Itala, which was so successfully defended by a force under Major Chapman, the want of ammunition in the advanced sangars was so urgent and the supply of it so hazardous, that one V.C. and four special promotions were won by men of the section of a battery R.F.A., which was present who were disengaged in rear and volunteered to carry it up to the firing line.

A reference to the Blue Book, which gives details of the various regrettable incidents that occurred, shows how often these were attributed to ammunition running short.

The consideration of ammunition supply resolves itself into two parts, the first of which embraces considerations of how best to supply troops actually engaged in action with ammunition to take the place of that which they have had to expend at a rapid rate, and also the amount which should be at hand for immediate replenishment; while the second is the method of bringing it from the base of operations to the battle-field, and includes the organisation of ammunition columns and such other units as may be necessary, as well as the total amount which it may be necessary to have in the field.

Under the first heading, small-arm ammunition must be dealt with separately from gun ammunition, while the second includes much that is common to both.

As regards the supply of small-arm ammunition, latest experience has proved that it is necessary that infantry, when advancing into action, should take with them as much as they can carry beyond the amount which they normally carry on the march, and that every empty pocket should be filled with it. This ammunition would be dealt out to them before moving off to take part in the engagement, and it is worth considering whether their ordinary equipment should include any extra means, such as bags or pouches, for carrying this extra amount, or whether it is better to issue it from the boxes in light bandoliers or bags which can be at once put on the men. The latter plan seems more desirable for the convenience of the men, as any increase in their equipment is to be deprecated.

Some method such as canvas pockets sewn inside the skirt of each man's frock, on the pattern of a gamekeeper's pockets, might be devised, and it might be as well to have the top of the pockets stitched up until required, to prevent them from being worn out by ordinary use.

Owing to the difficulty of replenishing ammunition in action, the carrying capacity of a man is an important point.

The Japanese are said to have found by their experience during the war, that a man could carry more than they thought possible at the commencement, and at the battle of Mukden one regiment is said to have gone into action with 500 rounds per man.

It is probable that the short, thick, and sturdy body of the average Japanese has a different balance from the body of the average European, and that similar methods of carrying weight are not applicable to both.

It is a mistake to give a man so much weight to carry that he becomes so exhausted as to lose value as a fighting man; but the necessity for taking a large amount of ammunition into action is nevertheless certain to be promptly demonstrated in war, and it is wise to be prepared to meet it.

The ammunition carriers, of which there are one non-commissioned officer and two or three men per company, should be men of powerful physique in order to carry up heavy loads of ammunition. Men stronger than their comrades have in this capacity an opportunity of using their physical strength in good service for their country.

For the purpose of getting up fresh supplies it is said that in Manchuria the expedient of dragging bundles of ammunition into the firing line by means of long ropes was used, the ropes being pulled up by men in the firing line and the bundles fastened to the ropes by men in rear in a less exposed position.

It is not said how these ropes were laid out, but if such a method was likely to be used, it would be quite easy to throw a rope some distance ahead over an extended firing line by means of a small rocket, on the principle of life-saving rockets. Or bullet-proof shields might be used for the ammunition carriers. A few years ago a mention of shields would have been regarded as absurd, but they were used by the Japanese and Russians for purposes of ground reconnaissance.

Their weight, combined with the weight of the ammunition to be carried, might be prohibitive, but this might be met by some form of modification into shielded hand-carts or wheelbarrows, on which the shield would slant to the front and project over the front of the barrow, thus leaving an open horizontal space through which the man wheeling could see the ground he was going over.

A form of two-wheeled barrow on springs, with broad-tyred wheels, might be most suitable for pushing over uneven ground.

The rope method, however, seems the most simple and practical, as, when the rope is thrown over the firing line, light

sleighs or low trollies can be dragged forward to it with but little exposure by men in it.

Perhaps someone here will kindly give us their views presently as to such possibilities.

As regards the amount of small-arm ammunition carried, we may briefly compare the amount we allow with that of other nations.

We carry 115 rounds (average) per rifle on the man.
100 ,, in regimental reserve.
100 ,, in brigade ammunition column.
100 ,, in divisional ammunition column.

i.e., 415 rounds per rifle in front of advanced depôt, while a total of 500 rounds per man, including non-combatants and machine-guns, is to be maintained in the field.

Our company pack animals for carrying ammunition should be small in order to lessen their chance of being hit when carrying out the important duty of replenishment. They should be thoroughly accustomed to firing, as an unsteady animal would attract the enemy's fire and would be unable to get as close up to the troops as a quiet one.

The Russians, in the late war, used small donkeys for the purpose, which are said to have been very useful.

The Germans carry on the soldier 120 rounds. In company ammunition wagons 72 rounds per rifle. In infantry ammunition columns, about 130 rounds per rifle. And on emergency, by substituting small-arm ammunition for oats, in company ammunition wagons, an extra 10 rounds. In field ammunition park, 20 rounds.

These numbers may have had alterations with the introduction of the new Spitze ammunition with the pointed bullet, but are taken from the latest account which I could obtain.

This amount is considerably less than what we allow, but they probably have a large supply at their frontier ammunition depôts, and the German instructions on the subject clearly point out the importance they attach to the subject.

These instructions direct that before an action the contents of small-arm ammunition wagons are to be wholly or partially distributed to the men, who fill their haversacks and coat and trouser pockets.

During an action refilled small-arm ammunition carts will be in a covered position as close as possible to troops in action, in pressing cases without regard to losses.

Officers and men are enjoined to replenish at every opportunity, and to have not only the regulation amount, but as much as it is possible to obtain.

The French carry 120 rounds on the man and 68 rounds per man in regimental carts and wagons, and in the first and second echelons of their corps ammunition park another 110 rounds, making about 300 rounds per man. Each army has further a grand artillery park for general replenishment, but the amount kept in it I have not been able to ascertain.

On going into action men are supplied up to as nearly as possible 200 rounds each, by emptying the regimental carts. They lay stress on the importance of the next supply being from what can be collected from the killed and wounded, and after that they replenish from the ammunition echelons, which correspond to our ammunition columns.

Bags to hold 500 rounds each are kept in the small-arm ammunition carts for convenience in carrying up to the firing line in the same way as we use them.

The Russians carry on the man	120 rounds
In the regimental S.A.A. carts	66 rounds
In the artillery flying parks	72 rounds
In the local parks	170 rounds
Total	428 rounds

per man in the field. These numbers are approximate, as it is not easy to verify them.

In Manchuria they are said to have carried an extra amount in their kit-bags and pockets, and to have taken into action up to 300 rounds per man.

Their two-wheeled ammunition carts were found to be very mobile. They got as close as possible to the firing line, and during a fight their ammunition men used to creep forward wearing a number of bandoliers, and place one behind each man in action.

Pack animals were constantly used, the small donkeys which they preferred have been already mentioned.

The Japanese carried 120 rounds on the man in the late war, 60 rounds on battalion pack animals, 120 rounds in ammunition columns; total, 300 rounds per man.

Further supplies seem to have been forthcoming, for they were said to have taken into action 250 to 300 rounds per man, using largely for the purpose their long blue tubular bags, suspended over the shoulder.

It seems likely that owing to the experience they gained, they have made complete arrangements for a more ample supply of ammunition in the future.

The amount of ammunition carried as reserves in the different organisations of foreign countries is not easy to ascertain or verify, and it is probable that the amount stored in the frontier fortress depôts is kept secret.

As regards total expenditure—in South Africa we expended 66,000,000 rounds small-arm ammunition. In Manchuria the Russians expended 174,000,000, including 15,000,000 captured by the Japanese.

Another matter that requires attention is the best method of carrying ammunition on the man. This can only be ascertained by practical tests.

Pouches on the belt is the method generally adopted for infantry, with or without the addition of a bandolier. The Germans use two pouches in the belt with 45 rounds in each,

and also carry 30 rounds in the reserve ration-bag in the knapsack, which bag can be worn without the knapsack.

The French use three pouches on the belt for their 120 rounds.

The Russians use two pouches on the belt, holding 30 rounds each, with another pouch slung over the right shoulder and a bandolier over the left, each holding 30 rounds.

The Japanese have three pouches on the waist-belt, containing a total of 120 rounds, but when going into action can carry a considerable extra amount of ammunition in their long blue bags which they wear over the shoulder.

It thus appears that while the infantry of England and Russia use a bandolier to carry a proportion of their ammunition, the Germans, Japanese and French carry it in pouches and bags.

Certain medical opinion has lately been unfavourable to the wearing of bandoliers, owing to their pressure over the heart and lungs, and a new equipment for infantry has been experimented with which does not include the bandolier.

It seems a suitable arrangement for the normal number of rounds to be carried in pouches, while the extra amount issued for taking into action might be packed and issued in light canvas bandoliers, such as were frequently worn by the Boers.

The first replenishment actually available on the battle-field are the unexpended rounds from the killed and wounded. These should be collected when possible by men sent from parties in rear, who are not engaged in the firing line, who must be provided with means for carrying the ammunition which they collect. Bags on the ammunition carts are provided for this purpose. When heavy casualties occur this supply is a very important one, and troops in support and reserve should be regularly trained to make full arrangements for dealing with it.

The system of packing ammunition for carriage in the field requires careful attention in order that it may be packed in such a way that the bundles or packages are ready and convenient for immediate issue to the troops, or men carrying ammunition to the firing line.

The boxes should be suitable for pack transport, and should be capable of being easily and quickly opened.

The various systems of packing small-arm ammunition are as follows:—

Germany—clips of 5—3 clips form a separate packet, and 15 of these packets fill a box weighing 17 lbs. The boxes have loops attached for carrying. Each company ammunition wagon has 64 boxes, or 14,400 rounds.

France has packets containing 8 (for single loading, into the magazines, which hold 8 rounds). 8 packets make one bundle. 30 bundles = 1 box of 1,920 rounds. Company's small-arm ammunition carts carry 16,380 rounds.

Russia uses clips of 5—3 clips in a cardboard box, 20 of these cardboard boxes being in a wooden zinc-lined box.

Their ammunition carts with one horse carry 20 boxes or 6,000 rounds.

Japan—clips of 5—3 clips being put in a cardboard packet, and 12 of these packets are made into a parcel fastened with tape.

The tape ends are long enough to tie together, and thus 2 parcels may be slung for conveyance, 8 of these parcels (1,440 rounds) make up a box of ammunition.

The boxes are fitted with rope handles, as well as for pack transport, and have a simple and rapid opening arrangement.

They carry a battalion reserve on pack animals.

Nothing should be omitted to make the various packets, bundles, and boxes of ammunition as portable as possible by the addition of straps, loops or handles, for carriage by men or pack animals, as well as to have them packed in such a way that they may be quickly opened and issued.

As regards mounted men, the German, French, and Russian cavalry carry their ammunition in pouches on the belt and in the wallets, and we use bandoliers.

For a mounted man, unburdened by the pack of the foot soldier, the bandolier seems a very suitable method, and probably has less objection from a medical point of view than for the man marching on foot, who has to carry a further heavy load. For distant raids, or wide turning movements, it may often be necessary for the cavalry soldier to load himself with extra ammunition, especially as on such occasions he will very likely be far from his ammunition column. He will be better able to do this than his comrade of the infantry, as his horse's legs rather than his own will be responsible for its conveyance. For dismounted action cavalry may require as much as they can carry.

Our cavalry carry 100 rounds on the man, 100 in regimental reserve vehicles, which consist of limbered wagons, 100 with the Horse Artillery Brigade ammunition column, and another 100 in the divisional ammunition columns—400 rounds in all—a reference to this divisional ammunition column supply to cavalry will be made presently.

While the cavalry should always have sufficient ammunition to enable it to make use of full fire effect, its expenditure will necessarily be less on an average than the infantry, and, consequently, the requirements of infantry have been taken as the basis for consideration of supply.

Next as regards the supply of field gun ammunition.

In South Africa there was not much to note owing to the numerical inferiority of the Boer guns. Our total expenditure of 15-pound field gun ammunition was 166,548, and of 12-pound Horse Artillery ammunition was 36,161. No excessive amount per gun in one day is recorded.

G. Battery Royal Horse Artillery, fired about 200 rounds per gun at Magersfontein, which was nearly, if not quite, the highest on record.

In Manchuria some heavy expenditure took place.

At Ta-shi-chiao, on 24th July, 1904, the 60 guns of the 1st Siberian Army Corps are said to have fired 17,000 rounds, or an average of about 280 rounds per gun in 15 hours.

A Russian source states that at Liao-yang the 1st and 3rd Siberian Army Corps batteries fired in two days' fighting (30th and 31st August) an average of 3,375 rounds per battery, which works out at about 211 rounds per gun per day in two successive days.

During four days' fighting at the same place, Liao-yang, 400 Russian guns fired a total of 120,000 rounds. This represents a weight of 800 tons, which, as a matter of transport, is no inconsiderable item.

Records of ammunition expenditure are often not reliable, and these amounts must be approximate, but they were doubtless very large (and their source of supply would be interesting to trace).

It is considered that after Mukden the Russian supply was practically exhausted.

Previous to the war they provided 600 rounds per gun in the field, and now recommend 1,000 instead.

Though the expenditure of ammunition quoted was undoubtedly heavy, it is generally recognised that our present Q.F. guns, as well as those of other nations, are capable of a still more rapid expenditure, which we must be prepared to meet in the event of war.

There are various reasons for concluding that expenditure will increase rather than diminish, these reasons include the increased rapidity at which guns can fire; the protection given by shields, which enables them to fight longer under hostile fire, as well as the system of firing from behind cover, whence fire can be continued perhaps indefinitely, also the necessity for covering areas of hidden ground with fire, such as slopes behind hills, where guns are supposed to be in action, or troops to be located.

Instances are recorded of large expenditures of ammunition having been made in Manchuria in such a manner on areas of ground that contained no hostile troops.

The temptations for long-range fire are also conducive to a waste of ammunition, and an increased use of night firing will add still further to the expenditure.

Owing to the great rapidity of fire of which our modern guns are capable, the control of expenditure in action is a very important duty of all commanders. The power of expenditure far exceeds the power of supply; the limit of the latter fixes that of gun power.

How best to maintain a sufficient supply involves a consideration of the various successive stages. The first supply is that to guns in action; not many years ago this was carried

out from the limber which stood with the team of six horses a few yards in rear of the gun, the wagons being regarded as a reserve. Owing to the increased accuracy and range of modern guns, it would now be fatal to the teams to leave them in such a position, and, owing to the increased rate of fire the limbers would soon be exhausted, and the wagon complete with its limber is now left alongside the gun in action, the teams being taken away some hundreds of yards to the rear and on a flank. The shields on the guns and wagons thus provide substantial cover for the men working the gun.

Under this system our present guns have available in action 76 rounds per gun without replenishment, without including the limber on each flank of the battery, which, added to that in the other battery vehicles, makes a total of 176 rounds per gun with the battery.

The brigade ammunition columns carry 202 rounds and the divisional ammunition columns 120 rounds for each Q.F. field gun, making a total supply of 498 rounds per gun in the field.

It may sometimes be difficult to bring up the first line wagons if the battery is under fire, as the teams will offer a conspicuous target, and other means may have to be devised, such as carrying up ammunition by hand. Occasions might arise when a sleigh or trolley might be pulled up by ropes, as was suggested for supply of small-arm ammunition to infantry, with the further advantage of having the protection of the shielded wagons to assist in the manipulation of the ropes.

A light motor trolly, protected by shields impervious to rifle or shrapnel bullets, might perhaps be devised for the purpose, to be used under special conditions.

As regards Horse Artillery, there is a technical point to which attention seems worthy of being directed.

Horse Artillery has frequently to be used as Field Artillery, and as such, similar methods of ammunition supply are suitable to both.

The *raison d'être*, however, of Horse Artillery is for co-operation with cavalry, and at such a time speed may be all important, especially with regard to the increased power of fire effect of Q.F. guns.

Imagine an ideal cavalry combat—two forces come into view, and, mutually supported by their guns, engage in a combined shock and fire combat—one side gains a superiority and shatters the ranks of its foe with a comparative cohesion of its own. Having attained this first success, the next endeavour will be to sweep on and convert the defeat of the enemy into a rout, or else to launch a further attack of victorious, or reserve, squadrons against his reserves, or troops, in rear.

At such a moment success may hinge on a rapid dash forward of the Horse Artillery guns, to either aid, by their fire, the demoralisation of the enemy, or to give time for the squadrons to reform their ranks, and for such an enterprise rapidity of movement and sufficiency of ammunition are essential.

The normal system laid down for supply to Horse Artillery is the same as for Field Artillery, viz., to unhook the teams from the wagon limber, which, with the wagon body, is left by the side of each gun. I suggest for consideration whether it would not be better that the normal system for Horse Artillery should be to unlimber and leave the wagon body by the side of the gun, the wagon teams, hooked in to their limbers, going to the rear with the gun limbers.

It is a slightly quicker operation to limber up the wagon bodies, than to hook the teams in to the limbers, when restive horses may cause some delay, and the wagons would thus be ready sooner for a rapid advance. Each gun would have 38 rounds alongside it, which, owing to the rapidity of the sequence of events in a cavalry action, may generally be regarded as sufficient, though the 24 rounds in the limber might perhaps not be enough. The present method of leaving both the wagon limber and body alongside the gun might be followed when considered necessary on a special order being given.

The German system of supplying guns in action is not quite similar to ours.

They are inclined to make a little more use of their limbers for the purpose, and before sending the gun limbers away, they take out the whole or a part of the ammunition.

Instead of leaving the wagon, with its limber, by the side of the gun, as we do, they unlimber the wagon-body, which is left by the gun, and send the wagon limber away, after emptying it of all its ammunition, thus apparently leaving the contents of the two limbers on the ground, by the side of each gun, as well as the full wagon-body, *i.e.*, 124 rounds per gun. This gives them the contents of one limber per gun, more than we have in action ready for use without replenishment, if we exclude our two flank-limbers. On the other hand, there is the delay necessary to empty the limbers, during which time the teams are standing exposed to view, which, even if not actually under fire, would, if in sight of the enemy, be conspicuous objects, and draw more attention to the position of the guns.

There is a further drawback in the necessary delay in repacking ammunition not expended when moving to another position.

The method is not suitable for our equipment, in which each round is pulled out separately, but is more adapted to the German equipment, in which four rounds are packed in carriers termed baskets, which are taken out and replaced complete. Another advantage of these baskets is that they can be conveniently carried by one man, and in that way replenishment of ammunition may be made to guns which are in such a position that wagons with teams cannot be brought up for the purpose.

The opportunity for firing at teams coming up to guns is always looked out for by hostile artillery, whereas individual men carrying up ammunition are far less conspicuous and offer a less tempting target, though the process is necessarily slow and laborious.

The Germans carry 130 rounds per gun with their batteries, and it is probable that they have increased the number which they lately carried in their light and heavy ammunition columns, which amounted to another 206 rounds per gun.

As late experience has proved what a large amount of ammunition is required, it is not likely that the Germans will neglect to make provision for a further supply.

The French unlimber their wagons, which are tilted over with the perch uppermost, alongside of the guns, this gives them 72 rounds per gun in action without replenishment, and a further supply of 240 rounds per gun in the remaining wagons and limbers of the battery, total 312 rounds per gun; while the three echelons of the corps ammunition park carry a further 189 rounds, making a total of 501 rounds per gun in the field.

Their horse artillery batteries have six guns and eight ammunition wagons, and use one wagon to supply each two guns. They have 142 rounds per gun with the battery, and another 355 with the corps ammunition park, making nearly 500 per gun in the field.

The Japanese replenish their ammunition from fresh wagons, either by changing wagons, or ammunition boxes, or bringing up the ammunition by hand, thus leaving a wide margin to allow for local circumstances, chiefly depending on how much the guns are exposed to hostile fire.

They have carrier trays holding five rounds.

The Russian supply appears to have been variable, and a report of their Inspector of Artillery mentions that the supply available in the parks, which includes all beyond the battery supply, varied from 310 to 138 rounds per gun.

They are now supposed to have 228 rounds per quick-firing gun with the battery, and a further 324 rounds in the flying parks, which carry the first and second reserves. They have also local parks, which are depôts on the lines of communication, and are supplied from the field ammunition depôts by the wagons of the Army Artillery Reserve Park.

If a prolonged stay, or heavy expenditure, is expected when coming into action, our first line wagons might be brought into action as well as those with the guns—this would give two wagons and limbers, or 152 rounds ready alongside each gun, or 912 rounds for the battery of six guns. Though our quick-firing guns are physically capable of easily disposing of this amount in much less than an hour, such a rapid fire would usually only be justified during critical minutes in a fight, and we may consider that this supply may generally be expected to last, at any rate, for some hours. Battles, however, last from dawn till dark for days in succession, and every arrangement should be made to meet any likely expenditure.

We read that want of ammunition caused frequent silence of guns in Manchuria, especially as the wagons had often to be 500 yards in rear, owing to shrapnel searched ground, and that laborious hand carriage was, therefore, necessary.

If guns are entrenched in the open, and are connected by any sort of covered way, supply from the rear and from a flank would have the best chance of success, as men, or vehicles, advancing with a lateral movement, would be a more difficult target for aimed fire than if they were making a direct advance, and they would also be out of the line of fire of those shells which were aimed at the battery.

The first replenishment to the ammunition carried in the battery vehicles is from the Brigade ammunition columns, which are part of each horse, field, and howitzer brigade, each heavy battery having its own ammunition column, and these columns are again supplied from divisional ammunition columns—the allowance in the field in front of line of communication being 498 rounds for each Q.F. 13-pounder and 18-pounder gun, 250 per howitzer and 250 per 60-pounder.

All these ammunition columns are in artillery charge, though horse and field brigade ammunition columns are also responsible for supplying small-arm ammunition to other troops as well, while the divisional ammunition columns carry ammunition for all troops of their division, as well as a proportion for the Cavalry Division and army troops. Though columns are detailed to supply certain units, no ammunition is to be reserved, but must be supplied in action to any troops on demand.

The divisional ammunition columns are supplied direct from the lines of communication.

As regards the vehicles used — the brigade ammunition columns include a certain number of ammunition wagons (with limber and body) for gun ammunition supply, and small-arm ammunition carts for infantry supply—these are for sending forward with fresh supplies to the first line artillery wagons and to the infantry brigade ammunition reserves, the remainder, as well as all that in the divisional ammunition columns, being carried in G.S. wagons. With reference to the small-arm ammunition carts, while those which accompany the infantry carrying regimental reserves, may be loaded to such an extent as to allow only walking pace, which will be fast enough to keep up with men on foot, those in the ammunition columns may be required to trot up some distance over rough ground, and should not be loaded beyond that capability.

Their present gross weight loaded is 22 cwt., behind two horses.

This weight, on rough or heavy ground, might be found to cause delay if speed was important; and it would be better in such a case to send lighter loads and a smaller number of boxes than the usual 16, in a larger number of carts, if they were available.

It has been decided that the new G.S. limbered wagons are to replace the small-arm ammunition carts of an Infantry Battalion. If this change is carried out in the ammunition columns also, and rough ground should make it desirable to send up a

lighter load of ammunition for replenishment, the limber only could be sent forward.

As regards the ammunition column systems of other nations, in considering the German system it must be noted that three batteries of Field Artillery make an Abteilung, two Abteilungen make a regiment, and two regiments a brigade, so that a German Artillery Brigade corresponds to one of cavalry or infantry, *i.e.*, a Brigadier-General's Command, and not to our Artillery Brigade, which is equivalent to the German Abteilungen. Each artillery regiment, as above, has a light ammunition column, which is again supplied from a heavy artillery ammunition column.

The supply to an infantry regiment is from an infantry heavy ammunition column.

These heavy ammunition columns represent the sections of our divisional ammunition columns, and are grouped together into Abteilungen (of four artillery and two infantry), which are equivalent to our divisional ammunition columns. These are again supplied from field ammunition parks, which each include ammunition columns with a number of horsed ammunition wagons for both artillery and infantry, which would be used for sending fresh supplies from the parks to the heavy ammunition columns of the army.

These army ammunition parks are supplied from the ammunition depôts at the base, one of which is established for each army.

It thus appears that the German system of sending ammunition forward is more elaborated than ours, and has another mobile organisation in the columns of the field ammunition parks for supplying the field army from lines of communication.

The French supply their batteries from the corps ammunition parks, which include three echelons of ammunition columns carrying ammunition, which, with the battery supply, amounts to 500 rounds per gun in the field.

These three echelons form three distinct mobile organisations between the batteries and the lines of communication, the first and second echelons containing both gun and small-arm ammunition, while the third consists of gun ammunition and a repair section. These three echelons may be regarded as equivalent to our brigade ammunition columns and the advanced sections and headquarters of our divisional ammunition column. To replenish these corps ammunition parks there is a further organisation termed grand artillery park of the army, each division of which includes one section on wheeled vehicles, one on trains ready for despatch, one at a convenient railway station in reserve, and one at the depôt headquarters of this park.

They thus appear to have wheeled transport ready at hand to send forward ammunition from the line of communication parks to the field army ammunition units.

Comparisons between Continental systems and our own appear somewhat inappropriate owing to the difference in our organisation.

For some excellent reasons we base the formation of our army on divisions, while both Germany and France, comparison with whom, both as leading military Powers as well as near neighbours, it seems most desirable to make, use the army corps as the basis of their armies. Notwithstanding this difference, if we go to war with the whole of our striking force, comprising six divisions besides a cavalry division and army troops, it seems probable that army corps will be formed under separate commanders, consisting of two or three divisions each, and our organisation will then approximate to those of Germany and France.

We appear, however, to be without the mobile units which those countries contemplate to use for the comparative functions of replenishing ammunition to the various divisional ammunition columns. This replenishment under present arrangements is to be made by the O.C. the lines of communication; but there seems to be no establishment laid down for any mobile unit by means of which he can carry out this important duty.

The system of supply from the depôts on the lines of communication to the fighting line should be one of successive echelons pushed forward, which can be extended like a piece of elastic until it is necessary to move the depôts forward.

Without sufficient mobile transport, the space between lines of communication and the divisional ammunition column, which is the hindermost ammunition unit of the fighting force, is lacking in this necessary elasticity. The divisional ammunition column is not a depôt, but is a mobile unit of the fighting force.

It may often happen that an abundance of local transport is obtainable in the form of country carts, etc. Such transport was largely used by both Japanese and Russians in Manchuria, where Manchurians and Chinese alike were willing to hire out their carts for the purpose, but to rely entirely on hired transport for this urgent duty might entail risk, and it seems that it might be better to recognise the necessity and to lay down the establishment for a unit, comprising a certain amount of mobile transport on the lines of communication to form an ammunition depôt, and whose duty it will be to replenish ammunition to the divisional ammunition columns, which will be moving with and part of the field army, and whose normal positions are usually one day's march in rear of the fighting troops. An auxiliary transport corps forms a unit of the lines of communication, but it is probable that this will be required for sending forward supplies other than ammunition.

A unit as proposed would represent the two-columned Abteilung of the field ammunition park of the Germans, and the first section on wheeled vehicles of the grand artillery army park of the French.

The difficulty of supply will vary with the progression of the army, offensive operations will entail a large distance to traverse and consequently more arduous exertions for bringing up ammunition, while a retreat, on the other hand, might mean falling back on the reserve depôts, where a fresh supply was ready.

We hope, however, that our armies will ever advance, and on such an assumption we must base our estimate of requirements.

Our ammunition columns are only mobilised in war, and consequently, except when occasionally paraded by using the *personnel* and horses of batteries, they are only known in name, and it is probable that their size and the amount of road space which is required for them is not fully realised by many people.

A field artillery brigade ammunition column contains 60 vehicles and 390 horses, and covers a length of road in column of route of 1,170 yards, while a divisional ammunition column has 157 vehicles and 1,075 horses, and occupies nearly two miles of road.

It is evident what careful arrangements must be made as to the proper location and direction of these units, in order to prevent road blocking and delay to reserves and other troops, as well as to ensure that their primary duty of replenishing ammunition is efficiently carried out.

Ammunition columns are on artillery charge, though they are organised for the purpose of supplying troops of all arms, except those of the howitzer brigade and heavy batteries, which carry only the special ammunition for their own units. It is therefore necessary that the divisional commander should make full arrangements for the disposition of the various ammunition columns, brigade as well as divisional, and that divisional orders should detail the infantry brigades which are to be supplied by the different field artillery brigade columns, in order that the officers commanding the columns may know whom they have to supply, and that each unit may know whence to expect replenishment.

A similar duty rests with the cavalry divisional commander with regard to his horse artillery brigade ammunition columns, and under the present system the army commander must also arrange for the 2nd reserve for the cavalry division and mounted brigades, which is carried in the divisional ammunition columns, to be available as required for those troops.

The general arrangements for the replenishment of the ammunition of a German army corps are made by its commander, and the light ammunition columns, which correspond to our brigade ammunition columns, are disposed of by the divisional generals, unless at the beginning of an action they hand them over to the artillery brigadiers.

With the French, orders are usually given to the ammunition columns by the divisional or army corps staff, while the army parks come under army orders.

It thus appears to be recognised that ammunition columns are units for general rather than for technical purposes, and there is no doubt their functions should be a subject for the consideration of officers of all arms.

On mobilisation, the *personnel* will include a large number of men belonging to the special reserve, and men who contemplate joining this reserve should be proud to think what important duties they will be called upon to undertake on mobilisation, in addition to their prospects of having to take the place of casualties in the fighting line.

There is one point of difference between our own and the German system which is worthy of notice.

Our ammunition columns are units, containing both gun and small-arm ammunition, while the Germans have separate heavy ammunition columns for artillery and infantry, which are grouped into Abteilungen of four artillery and two infantry columns; but each column is a separate unit, with its own officers and transport, one column containing howitzer ammunition, and consequently the units containing the different sorts of ammunition are more conveniently detached than is the case with the sections of our divisional ammunition columns, three of which contain field gun and small-arm ammunition, while the fourth has a mixed lot of 13-pounder, howitzer, 60-pounder, and small-arm ammunition.

The vehicles containing any sort of ammunition can, of course, be despatched in any direction; but if they have to be quickly detached and to remain some distance away for several days, greater convenience will be afforded for supply and administrative necessities if the vehicles containing the same sort of ammunition can move, as a formed section, with its own staff and transport.

A further point which seems worthy of attention is the supply to the cavalry division and the mounted brigades belonging to the army troops.

The first reserve, after the regimental one, detailed in war establishments to be carried in the brigade ammunition columns, is conveniently carried in the two Horse Artillery brigade ammunition columns of the cavalry division and in the section of ammunition column which accompanies each Horse Artillery Battery of the Mounted Brigades.

The second reserve, however, is divided among the six divisional ammunition columns, and must be pushed forward from these to within easy reach of the Horse Artillery Brigade ammunition columns (or sections) which will be with the cavalry division or two mounted brigades. The duty of the cavalry division is strategical reconnaissance, the preliminary to which may necessitate a vigorous offensive in co-operation with the guns against the mass of the enemy's cavalry, and may entail rapid movement a long distance from the main position of the army, as well as a heavy expenditure of ammunition.

Should the hostile cavalry be defeated, it might be all-important for the cavalry division to at once assail the flank of

the enemy's main position, or to operate promptly against his communications, which might entail a further rapid advance and heavy fighting, requiring immediate replenishment of ammunition.

Any uncertainty as to this replenishment would be a serious impediment to success, and it seems that the fact of depending for this supply on four different groups of vehicles, for the cavalry division, and two others for the mounted brigades, might be liable to cause serious embarrassment.

It has been suggested that these groups of vehicles would, in such a case, be pooled together and sent forward as a unit in the direction required.

This would entail orders permeating through all the six divisions from head-quarters, and arrangements being made for the collection of the vehicles, unless they went forward in separate groups, moving independently.

These vehicles, however, are not even separate sections of the divisional ammunition columns, but are a few out of the heterogeneous fourth section, and this pooling would be at least lacking in organisation.

It, therefore, seems a matter for discussion whether a cavalry divisional ammunition column should not be formed as a unit on mobilisation of the cavalry division to carry this second reserve, instead of the six divisional ammunition columns, whose unwieldy bulk would thus be slightly lessened. There is the drawback of forming another non-combatant unit, but if such unit is likely to contribute to the success of the cavalry operations, its formation is justifiable and desirable.

There is, doubtless, a desire not to hamper the movements of a cavalry division with any more vehicles than are necessary, and it might be worth considering as to the advisability of making the cavalry divisional ammunition column a unit of the army troops, to be sent forward when necessary, either as a whole, or by different groups, in different directions.

On other occasions it might accompany the Transport and Supply column of the army troops, where the ammunition would be more accessible for sending rapidly in a required direction, than it is at present divided among six different divisional ammunition columns.

If formed as a unit of the cavalry division it would, presumably, march with the cavalry divisional transport and supply column.

A previous reference was made to the number of vehicles comprised in an ammunition column, and the amount of road space they occupy.

For our six divisions to take the field, besides the cavalry division and army troops, the ammunition columns alone will include a total of 2,342 vehicles and 15,660 horses, and will cover road-spaces amounting to 16 miles. When our army is required to be mobilised, the probability is that it will be necessary to carry out the mobilisation with all speed. The supply of horses will be a question of serious moment, and

even if all the necessary horses are forthcoming for the Regular troops, we shall have fourteen territorial divisions who will presumably be suddenly called on to prepare, at the same time, and for whom a very large number of horses will be required to render them efficient to take the field.

At a discussion held here last month on the question of horse supply, we were told that the number required on mobilisation would be 173,000.

At the same discussion it was fully recognised that the supply of horses in the United Kingdom is decadent, both as regards numbers and quality, and Mr. Chaplin further told us that the report of the Royal Commission on horse breeding has hitherto produced no practical results owing to want of funds to devote to the cause. We must therefore be prepared for great difficulty in finding horses for war on a large scale, and if a substitute can be found for certain services it is deserving of at least careful investigation. Special conditions may be attached to any particular theatre of operations.

Camels may be necessary in the desert, mules in mountains, and if any peculiar form of vehicle, like the ox-wagon or buck-wagon of South Africa, is of common use in a country, it may be desirable to employ it.

But our general arrangements may be made with a view to operations taking place in a country like Europe, where roads will ordinarily be used by the heavy transport.

The possibilities of mechanical transport for military purposes have been under trial for some time, but considering the great development of its employment which has been made for industrial purposes, we may be justified in expecting, shortly, a greatly increased use of it in the Army.

While those vehicles of the ammunition columns, which are used for carrying ammunition into the fighting line, *e.g.*, the ammunition wagons and small-arm ammunition carts, must continue to be drawn by horses for convenience of manœuvre in the field, it seems that a proportion of the heavier vehicles, which include the G.S. wagons carrying ammunition, might well be mechanically propelled.

The limit of their use depends on the number of teams of horses which it is necessary to have in reserve for the batteries.

The ammunition columns, at least, as far as artillery are concerned, form a reserve of men and horses as well as ammunition.

Heavy casualties may occur at any time among the batteries, which may render the guns actually immobile until fresh teams and drivers can be obtained. If these are with the ammunition columns the supply is at hand, but if in these columns a large amount of mechanical transport is substituted for horsed vehicles, careful calculations must be made of the number of teams which it is necessary to have in reserve.

Field remount depôts have been mentioned as available; but for such a purpose, on emergency, a number of untrained remounts without harness cannot be compared with trained and

harnessed teams ready for immediate work. Apart, however, from this important aspect of the case, a general comparison may be made between mechanically propelled and horsed vehicles as regards :—

1. Road space occupied and carrying capacity.
2. Initial outlay.
3. Cost of upkeep.

Mechanical transport can be driven by steam, electricity, or the petrol system, but the opinions of engineers tend to the conclusion that steam is the most reliable and convenient for transport purposes. Engines can be made of various degrees of power and speed, from the heavy one of the lion type, which can draw four wagons carrying 6 tons each, to the petrol lorry on rubber tyres, which can carry a load of 30 cwt., at 20 miles per hour.

We can assume that a light engine costing £500 will draw three loaded G.S. wagons, which represent a gross weight of 7 to 8 tons, behind the engine.

Supposing half of the 30 G.S. wagons carrying ammunition in a field artillery brigade ammunition column were horsed, and the other half mechanically drawn, we could substitute five light engines for fifteen teams of horses and harness. This would save over 100 yards of road space.

The initial cost of five engines is £2,500, and that of the horses and harness is £4,260, reckoning each engine costs £500, each horse £40, and each team of six sets of harness £44.

A comparison of the cost of upkeep is not so easy to make, as the chief expense of the engine is the cost of fuel, which is only consumed when the engine is in use, while the horses require their rations, whether at work or not.

The following is a comparison of the general expenses of men and fuel for the engine, and men and horses for the teams, smaller items, such as cleaning and housing for the engines and veterinary expenses for the horses, not being included.

The light engine is estimated at requiring 1¼ lbs. coal per gross ton weight per mile, the gross weight being 12 tons, while the medium burns 1 lb. per gross ton of 32 tons, coal being 20s. per ton. The engine drivers are estimated at 5s. per day, the heavy wagons having one extra brakesman each, at 3s. per day. For a day's march of 24 miles, 3 G.S. wagons can be drawn by a light engine and three men to work it, at a working cost as above of 18s. 3d., the cost of three teams and drivers being £2 14s. per day.

For a week's travelling of 100 miles, the engine's expenses would be £6, while the teams would be £18 18s. The medium type of engine with three wagons carrying 4 tons each, would cost for one march of 24 miles, £1 11s., while the corresponding expenses of the twelve teams to draw the same weight is £10 16s., and for 100 miles covered in a week, the engine costs £9 17s., and the teams £75 12s.

Other and more elaborate calculations have been made by experts, based on annual expenditure, interest on capital, cost of accommodation, etc., which demonstrates that steam transport for heavy loads is from one-third to one-quarter of the cost of horsed transport for the same loads.

Economy is in favour of mechanical transport, but to attain economy there must be no sacrifice of efficiency for tactical purposes, nor any reduction in the number of horses that it may be considered desirable to retain in ammunition columns for reserve requirements.

There is an advantage which may be claimed for mechanical transport, which applies especially to occasions when it may be necessary to send fresh supplies of ammunition forward by forced marches, and this is the power of continuous movement while fuel and water are obtainable, and so long as the machinery remains in working order, and a relief of engine drivers is forthcoming. In such a case a long distance might be covered in a time that would be impossible for horses, whose powers of endurance are limited by their strength, which cannot be overtaxed without serious waste of horses, and a risk of failure of the object in view.

As regards Horse Artillery, it would be dangerous to make a substitution of machine draft for horses in its ammunition columns until exhaustive practical trials had been made as to its capacity for travelling, and the rate of progress it may be expected to achieve, over such ground as G.S. wagons with ammunition may be expected to cover. Even then, owing to long and rapid marches, there may be a more urgent demand for a ready reserve of teams of horses, and any substitution of mechanical transport in horse artillery brigade ammunition columns does not seem desirable.

As regards the divisional ammunition column, which is formed for supplying the lighter columns in front, and carries all the ammunition in G.S. wagons.

For purposes of conveyance, mechanical transport seems more suitable for this heavier unit than for the lighter ones, and it might be considered whether more powerful engines drawing larger wagons, capable of more carrying capacity, would be suitable.

In such a unit it might be advantageous to have different sorts of engines—a section of petrol lorries, which could travel 20 miles an hour and carry a load of 30 cwt. each, would be invaluable for rapid replenishment, and might solve the difficulty which has already been pointed out with regard to the divisional ammunition column supply for cavalry.

To what extent mechanical transport may be made use of in brigade and divisional ammunition columns, and the corresponding alteration that might be made in the establishments of those units, is a subject which it is desirable to discuss in order to obtain a wide field of opinion on a most important subject.

The further possibilities of its use for the baggage and supply wagons of ammunition columns are applicable to the whole army, and, therefore, need not be discussed in a paper referring only to ammunition.

Previous reference has been made to the possible need of an additional mobile unit on the lines of communication, by which the replenishment of the divisional ammunition columns might be carried out. As such a unit does not now exist, it cannot be claimed as one of those in which it is necessary to include teams of horses for reserve purposes, and for its formation the full advantages of mechanical over horsed transport may be claimed. Also, as its location would be on the lines of communication, and, presumably, within easy reach of a railway, the necessary fuel would be easily obtained. Coal, however, is such a wide-world luxury that a sufficient supply may generally be expected.

When advocating mechanical transport for the carriage of ammunition, it does not seem amiss to point out other advantages which it includes, among which are the following :—

A dynamo can be attached to each engine and used for electric lighting of lamps or search-lights. Portable ovens and boilers can be kept constantly at work.

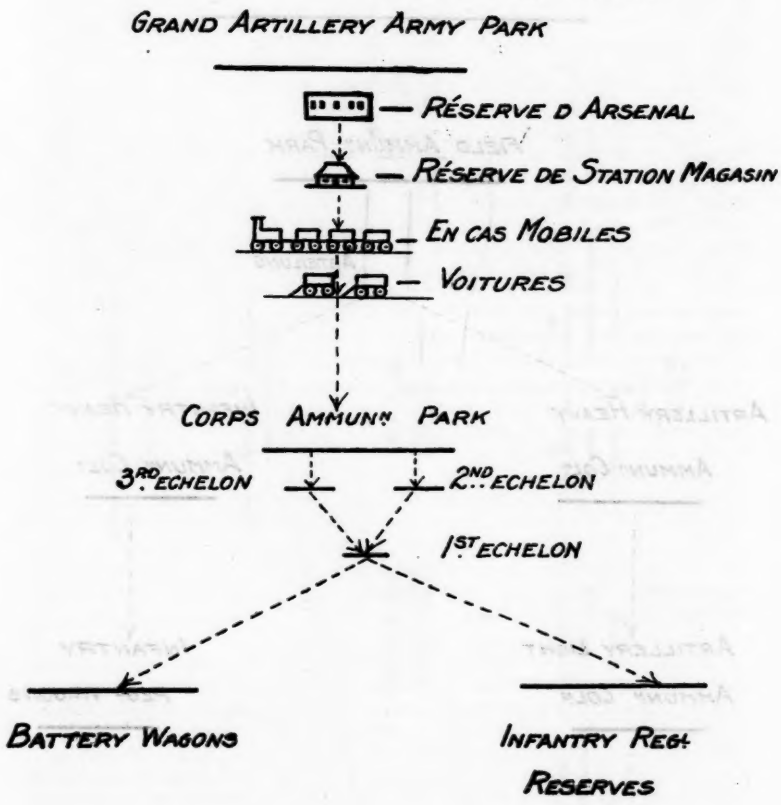
Heavy wagons can be protected by bullet-proof shields, and used for defence if necessary.

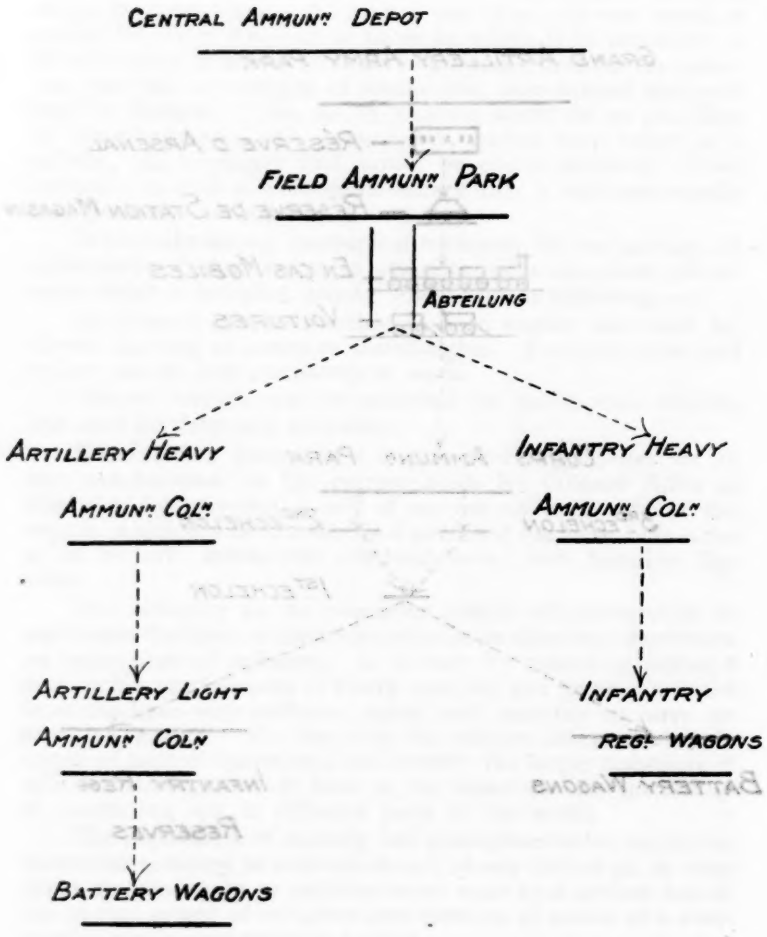
Even such a luxury as a wagon providing shelter for 50 men can be made on the pattern made by Colonel Allen of Sheffield, by carrying a roll of canvas on each side of the wagon, which can be unrolled and stretched out from both sides so as to form substantial overhead cover with hanging flap sides.

The necessity for an enormous supply of ammunition in war makes the lines of communication more than ever dependent on main lines of railways. It is only by means of railways that such a vast amount of heavy material can be sent forward from the base with sufficient speed and certainty to carry on offensive warfare. In this way the subject affects the whole course of tactical operations, and thereby the larger questions of national strategy which have to be based on the possibility of conducting war in different parts of the world.

The importance of making full arrangements for supplying ammunition cannot be over-estimated, as any failure in, or even doubt about, supply or replenishment must be a serious handicap to that power of initiative and freedom of action of a commander which is essential to success.

As regards the whole subject, some of the suggestions which have been made may be impracticable, but they have been offered with a view to raising discussion and getting proposals for the best devices and methods to adopt as regards the apparently dry, though nevertheless highly-important, subject of supply of ammunition in the field.


GRAND ARTILLERY ARMY PARK
— RÉSERVE D ARSENAL
— RÉSERVE DE STATION MAGASIN
— EN CAS MOBILES
— VOITURES
CORPS AMMUNN PARK
3RD ECHELON
2ND ECHELON
1ST ECHELON
BATTERY WAGONS
INFANTRY REGT RESERVES


CENTRAL AMMUNn DEPOT
FIELD AMMUNn PARK
ABTEILUNG
ARTILLERY HEAVY
AMMUNn COLn
INFANTRY HEAVY
AMMUNn COLn
ARTILLERY LIGHT
AMMUNn COLn
INFANTRY
REGt WAGONS
BATTERY WAGONS

LINE OF COMMUNICATIONS
DIV.L AMMUN.N COLUMNS
HEAVY BATTERY AMMUN.N COL.NS
HEAVY BATTERY WAGONS
HOWITZER BDE. AMMUN.N COL.NS
HOWITZER BATTERY WAGONS
INFANTRY BDE. AMMUN.N RESERVE
R.F.A. BDE. AMMUN.N COL.NS
R.F.A. BATTERY WAGONS
DIV.L TROOPS
MOUNTED BDE. AMMUN.N COL.NS
UNITS OF MOUNTED BRIGADE
CAVALRY REGT. S.A. WAGONS
R.H.A. BDE. AMMUN.N COL.NS
R.H.A. BATTERY WAGONS
CAV.Y DIV.L TROOPS

Major-General A. N. ROCHFORT, C.B., C.M.G. (Inspector of Royal Horse and Royal Field Artillery) :—I think the lecturer has given us many valuable suggestions as regards the replenishment of ammunition in action, and has done well to point out that owing to the excessive road space necessary we have probably reached the limit in the amount of ammunition that it is desirable to carry in front of the advanced depôt in horse-drawn vehicles. If that is accepted, it remains to make the best use of what we have got and to avoid waste. With reference to the question of waste, the lecturer has pointed out that experience with regard to the expenditure of gun ammunition in Manchuria showed that covering with fire areas not definitely known to be occupied by the enemy may be a very wasteful procedure. I think that is certainly one lesson not to be overlooked. I speak now, I know, in the presence of a great many experts, but I think it might almost be accepted that fire that cannot be observed with reference to the target is very probably wasted. Of course, it is one thing to plaster a hillside with fire; there is no difficulty in observing the bursts; but if you cannot relate the target with reference to those bursts, you are very likely throwing your ammunition away. As regards small-arm ammunition, there are other ways of waste besides an undue rate of fire at an inadequate target, and those of us who have been in South Africa have had some experience of this. One source of waste—it may now have been corrected—was the ammunition pouch then in use. There was no doubt that when men lay down to fire, the ammunition was very apt to drop out, and was left on the ground. I went over a battle-field in South Africa some time after an engagement and I could see plainly small piles of ammunition, marking the places where the men had lain down. There was also a considerable amount of ammunition left on the bivouacks, but that, of course, is largely a matter of discipline. The ammunition thus left was not only lost to us, but proved a source of supply to the Boers. The lecturer has quoted statistics of the large expenditure of ammunition in the recent war, but until we have read the history of that war and the accounts of both sides are available, we cannot form any estimate of how far the effect was proportionate to the expenditure. To bring these two into the best mutual relations represents, in a great degree, the aim and object of training.

Major-General Sir GEORGE MARSHALL, K.C.B. :—The last speaker has spoken about the waste, and I am glad he mentioned that, because that is a point which every officer in the Service should take to heart. It is not only the artillerymen in charge of the ammunition, but every officer in all branches of the Service, should control the waste of ammunition. I can add one or two curious instances of waste to those that have been already given. In the late war there was one officer—a very distinguished officer in a high position—who had heavy guns with him. As I had charge of the supply of this heavy ammunition, I used to look upon every round as worth its weight in gold. I had to watch the proceedings of all columns, and supply the heavy ammunition, and it was naturally a great trouble. From this particular column I got notice that it was using the ammunition very freely. I discovered that this officer every morning before marching used to fire so many 5-inch shells at the adjoining kopjes, instead of reconnoitring. I submit that was a very uncalled-for waste. Another officer, who was very energetic, established a sort of experimental school of artillery and other arms, and made all sorts of curious experiments. I could go on telling you very many

more stories, but I think those are enough to show what may go on. There is another point which I think is really serious. There is no doubt that recent experience has shown us that the supply and replenishment of ammunition on service may be a matter of supreme importance, and may be attended with great danger, and requires the services of men who are prepared to devote themselves and sacrifice themselves for the cause. I submit that you cannot get that sort of service without trained men—men trained also to a certain amount of discipline. I think, if we are going to rely on all that being done entirely by the men we pick up in the street at the last moment, we are courting disaster. It is a very important matter to bear in mind. I think, in this room, we professional soldiers do not always realise sufficiently that we have to educate our politicians. The politician has a right to take whatever a professional soldier says as serious, and I, therefore, think we ought to be very careful. On the point under discussion I urge that untrained men will not do for ammunition columns. The lecturer remarks that on mobilisation the *personnel* will include a large number of men belonging to the special reserve. I am told the special reserve may mean men who have had six months' training. Perhaps the lecturer will tell us who they are?

Colonel WING:—They are the men who have had six months' training.

Sir GEORGE MARSHALL:—If they are all untrained men, without trained officers, I venture to say that they will not do. I quite admit that you cannot get every man thoroughly trained for everything on service; but I do think the officers and a certain proportion of men with the ammunition columns, should be thoroughly trained and disciplined.

The CHAIRMAN (Lieut.-General Sir H. Smith-Dorrien):—As it seems that no one else will rise, amongst the many experts I see in front of me, to continue this interesting discussion, I shall make a few remarks myself. I was rather struck with the paragraph on the first page of the lecture, the paragraph that has served more or less as a text for the whole of the rest of the lecture: "When troops engage in battle the side which first fails in ammunition has certain defeat in front of it." It struck me as a very useful sentence to bring out on the first page, as it at once gives us the pith of the whole lecture. It was brought home to me very early in my soldiering days that not only must you have an adequate supply of ammunition, but you must also have a thoroughly good system for issuing it. I was fortunate enough—or perhaps some might say unfortunate enough—to have my *baptême de feu* in the Zulu War at the Battle of Isandlana, and there we had certainly an adequate supply of ammunition; but it was all packed away in boxes and on bullock wagons, and there was no means of getting at it. The result was that one of the finest regiments that ever existed in point of physique and discipline suffered, not only a great defeat, but a terrible disaster. The old 24th, the South Wales Borderers, were driven back from position to position, disputing every yard of the ground. I saw it myself. They had only some seventy rounds of ammunition in their pouches. The whole of the Zulu army was advancing on them in a large semi-circle; but there was a period when that army wavered, and were on the verge of retiring and giving up the attack, when suddenly the supply of ammunition failed; and yet close at hand, but in screwed down boxes

Major-General A. N. ROCHFORT, C.B., C.M.G. (Inspector of Royal Horse and Royal Field Artillery) :—I think the lecturer has given us many valuable suggestions as regards the replenishment of ammunition in action, and has done well to point out that owing to the excessive road space necessary we have probably reached the limit in the amount of ammunition that it is desirable to carry in front of the advanced depôt in horse-drawn vehicles. If that is accepted, it remains to make the best use of what we have got and to avoid waste. With reference to the question of waste, the lecturer has pointed out that experience with regard to the expenditure of gun ammunition in Manchuria showed that covering with fire areas not definitely known to be occupied by the enemy may be a very wasteful procedure. I think that is certainly one lesson not to be overlooked. I speak now, I know, in the presence of a great many experts, but I think it might almost be accepted that fire that cannot be observed with reference to the target is very probably wasted. Of course, it is one thing to plaster a hillside with fire; there is no difficulty in observing the bursts; but if you cannot relate the target with reference to those bursts, you are very likely throwing your ammunition away. As regards small-arm ammunition, there are other ways of waste besides an undue rate of fire at an inadequate target, and those of us who have been in South Africa have had some experience of this. One source of waste—it may now have been corrected—was the ammunition pouch then in use. There was no doubt that when men lay down to fire, the ammunition was very apt to drop out, and was left on the ground. I went over a battle-field in South Africa some time after an engagement and I could see plainly small piles of ammunition, marking the places where the men had lain down. There was also a considerable amount of ammunition left on the bivouacks, but that, of course, is largely a matter of discipline. The ammunition thus left was not only lost to us, but proved a source of supply to the Boers. The lecturer has quoted statistics of the large expenditure of ammunition in the recent war, but until we have read the history of that war and the accounts of both sides are available, we cannot form any estimate of how far the effect was proportionate to the expenditure. To bring these two into the best mutual relations represents, in a great degree, the aim and object of training.

Major-General Sir GEORGE MARSHALL, K.C.B. :—The last speaker has spoken about the waste, and I am glad he mentioned that, because that is a point which every officer in the Service should take to heart. It is not only the artillerymen in charge of the ammunition, but every officer in all branches of the Service, should control the waste of ammunition. I can add one or two curious instances of waste to those that have been already given. In the late war there was one officer—a very distinguished officer in a high position—who had heavy guns with him. As I had charge of the supply of this heavy ammunition, I used to look upon every round as worth its weight in gold. I had to watch the proceedings of all columns, and supply the heavy ammunition, and it was naturally a great trouble. From this particular column I got notice that it was using the ammunition very freely. I discovered that this officer every morning before marching used to fire so many 5-inch shells at the adjoining kopjes, instead of reconnoitring. I submit that was a very uncalled-for waste. Another officer, who was very energetic, established a sort of experimental school of artillery and other arms, and made all sorts of curious experiments. I could go on telling you very many

more stories, but I think those are enough to show what may go on. There is another point which I think is really serious. There is no doubt that recent experience has shown us that the supply and replenishment of ammunition on service may be a matter of supreme importance, and may be attended with great danger, and requires the services of men who are prepared to devote themselves and sacrifice themselves for the cause. I submit that you cannot get that sort of service without trained men—men trained also to a certain amount of discipline. I think, if we are going to rely on all that being done entirely by the men we pick up in the street at the last moment, we are courting disaster. It is a very important matter to bear in mind. I think, in this room, we professional soldiers do not always realise sufficiently that we have to educate our politicians. The politician has a right to take whatever a professional soldier says as serious, and I, therefore, think we ought to be very careful. On the point under discussion I urge that untrained men will not do for ammunition columns. The lecturer remarks that on mobilisation the *personnel* will include a large number of men belonging to the special reserve. I am told the special reserve may mean men who have had six months' training. Perhaps the lecturer will tell us who they are?

Colonel WING:—They are the men who have had six months' training.

Sir GEORGE MARSHALL:—If they are all untrained men, without trained officers, I venture to say that they will not do. I quite admit that you cannot get every man thoroughly trained for everything on service; but I do think the officers and a certain proportion of men with the ammunition columns, should be thoroughly trained and disciplined.

The CHAIRMAN (Lieut.-General Sir H. Smith-Dorrien):—As it seems that no one else will rise, amongst the many experts I see in front of me, to continue this interesting discussion, I shall make a few remarks myself. I was rather struck with the paragraph on the first page of the lecture, the paragraph that has served more or less as a text for the whole of the rest of the lecture: "When troops engage in battle the side which first fails in ammunition has certain defeat in front of it." It struck me as a very useful sentence to bring out on the first page, as it at once gives us the pith of the whole lecture. It was brought home to me very early in my soldiering days that not only must you have an adequate supply of ammunition, but you must also have a thoroughly good system for issuing it. I was fortunate enough—or perhaps some might say unfortunate enough—to have my *baptême de feu* in the Zulu War at the Battle of Isandlana, and there we had certainly an adequate supply of ammunition; but it was all packed away in boxes and on bullock wagons, and there was no means of getting at it. The result was that one of the finest regiments that ever existed in point of physique and discipline suffered, not only a great defeat, but a terrible disaster. The old 24th, the South Wales Borderers, were driven back from position to position, disputing every yard of the ground. I saw it myself. They had only some seventy rounds of ammunition in their pouches. The whole of the Zulu army was advancing on them in a large semi-circle; but there was a period when that army wavered, and were on the verge of retiring and giving up the attack, when suddenly the supply of ammunition failed; and yet close at hand, but in screwed down boxes

on wagons, was a plentiful supply. The result we all know. The Zulus, seeing the firing stop, recovered and swept all before them. Thus the necessity for an adequate supply of ammunition and a proper system of issuing it was brought to my notice, and emphasised in my very early days. Since that time the supply, as the lecturer says, has become a most stupendous problem, adding not only to the expense, but also to the science of war, and unquestionably, nowadays, very considerable organisation in peace time is necessary. The lecturer has discussed how infantry should get their supplies when once committed to an attack, and he has also invited us to consider certain suggestions that he has put forward for sending his ammunition up by light lines thrown by rockets, sending it up by barrows, and in other ways. I think the more one reads about the late Russo-Japanese campaign, the more one sees that as they came towards the end of the war the more they filled up their men with ammunition before they went into action; in other words, the less they trusted to being able to supply them with further ammunition. And that is my own idea. I think the lecturer's suggestion with regard to having pockets, which are sewn up in peace time, in every man's coat, is a very good one, because I do think when a regiment is likely to go into a heavy action we ought to load up the men in every possible way with ammunition, so that they may be independent of its coming up from the rear. I was rather interested in this particular point, because just before I left my late command, an officer of the 127th Beluchi Light Infantry, Major Mennie had invented a roller rather like a garden roller, with a cylinder inside, which remained stationary when the roller revolved. His idea was that the roller, which was bullet proof, should be connected with a long line to the fighting force, and pulled up and back again. As a matter of fact, he was still experimenting with it when I left. I think the general idea was that where you had a very flat bit of ground it would work; but otherwise it was apt to stick and not work very well. However, he is experimenting further, and in course of time may evolve something useful out of it. With regard to the training of pack animals, that, unquestionably, is a very essential thing. We suffered disaster certainly on one occasion by our mules and animals not being accustomed to the noise and turmoil of war—I refer particularly to Nicholson's Nek in the Boer War. So much did this impress itself on me that when I was sent to India as adjutant-general, one of the first steps I took with regard to readiness for war was to press the Military Department to give us machine gun mules and ammunition mules in time of peace. At that time there was nothing of the sort in existence, and the system was, on war breaking out, and the mobilisation of divisions, to issue mules from the commissariat for the machine guns, and for the ammunition, untrained mules. I am glad to say, as far as the machine guns were concerned, the Government of India gave us the mules, and now they have thoroughly trained mules permanently stationed with battalions. The same success has not attended the ammunition mules, but I hope that will come, because it is really very necessary. With regard to the new general service wagon, which the lecturer mentioned, I have only seen it once or twice, and perhaps I am hardly in a position to give an opinion upon it. It is very light, and is built on the limber principle. What struck me was, that loaded with infantry ammunition, and being pushed up to the front hurriedly over rough ground, there would be very grave danger of its upsetting. I merely mention that, but I hope we shall be able to complete the experiments with it later on in the summer, and give a more definite opinion upon it. I now come to the not least interesting

part of this most interesting lecture, and that is the question of the enormous number of horses required to put our ammunition columns into the field. All those who were present at the discussion to which the lecturer has referred, on the 20th February, must have been struck with the totally inadequate supply of horses in this country. One point that struck me more than any other in regard to it was a statement made by Lord Carrington some two or three months ago, that in the previous twelve months there had been 10,000 less foals born in this country. That must make us all reflect as to where we are going to get our horses. You must remember that we are only referring now to the ammunition columns, but think of the many other horses. I think the lecturer said that 173,000 were required?

Colonel WING :—Yes.

The CHAIRMAN :—It behoves us then, to study in every possible way alternate methods of transport, and, therefore, the comparatively decreased expense and the greater carrying power which the lecturer has brought out in connection with mechanical transport, are particularly instructing in this connection. I think we are all very much indebted to him for the very careful way in which he has worked out the details, and the thought he has given to it. But this mechanical transport, although it may help us in Europe or South Africa, is hardly yet suitable for the Frontier of India. We have had several experiments with mechanical transport on the roads on the Baluchistan Frontier, and never with any successful results. Therefore, until we can get the question of roads more seriously taken up, the ones crossing into Afghanistan and in Afghanistan itself, I am afraid mechanical transport, except of a very light nature, would not be possible. However, we have hopes, because there is no question but that the Amir of Afghanistan was very much bitten by the motor when he was in India, and is doing his best to perfect the roads. Another point with regard to the use of mechanical transport in that country is the difficulty of providing fuel. That also may be got over, because the hills in Baluchistan abound in coal, some of which is worked and some not. As railways come along, and roads improve, there is no reason why fuel should not also be available for mechanical transport, in the not near future though, I am afraid. The other salient subjects for future thought brought out in the lecture, and in the discussion, I only propose to refer to quite briefly. I have just noted them down. The first is: Is not the German system of separate columns for the different kinds of ammunition more workable and more practicable? Secondly: Cannot a better system be devised for the second reserve of the cavalry division, which is at present distributed over the ammunition columns of the six divisions? Thirdly: Should not the lecturer's suggestion be adopted that the R.H.A., when coming into action in an engagement with cavalry, should take away both limbers instead of leaving one alongside the guns? It struck me as a very practical suggestion. Fourthly: Why do not we adopt carrier trays for our ammunition? I speak as an infantry officer, and merely put these questions forward for consideration of what may possibly tend to improve our efficiency. Fifthly: There is the necessity for nursing ammunition which was so very ably brought out by General Rochfort, and endorsed by Sir George Marshall. I could not help trembling a little bit when I heard Sir George Marshall referring to having stopped some officer firing heavy guns in South Africa, because I must own that for the moment I felt a little bit guilty. When I heard, however, that the

officer was only firing just to clear the atmosphere in the early morning, I felt a little happier, because I knew I had not done that. At the same time, I remember Sir George Marshall coming across the river at Paardeberg and telling me I must be a little more careful in the expenditure of my ammunition. I merely mention that to show you that Sir George practised what he preaches. Personally, I do not know when I have gleaned so much useful knowledge and food for reflection as I have from this excellent lecture. I am sorry there are not more here to hear it, but perhaps we are a little unfortunate, as to-day is the day of the Army Point-to-Point races. I daresay a good many of us would like to have been there, but we cannot, of course, be in two places at one time! I cannot conclude without calling attention to another paragraph of the lecture. Looking round the audience I was rather sorry not to see all branches of the Service better represented. It seemed to me that the bulk of those present are artillery officers. The lecturer's paragraph, which aptly touches on this point, reads as follows:—"It thus appears to be recognised that ammunition columns are units for general rather than for technical purposes, and there is no doubt their functions should be a subject for the consideration of officers of all arms." It only remains for me to offer the lecturer, on your behalf and my own, our thanks for the great trouble he has taken to prepare and deliver to us this admirable lecture this afternoon.

THE HEAVY ARTILLERY OF A FIELD ARMY: A COMPARISON.

By Colonel F. G. STONE, p.s.c.

1. THE terms "heavy artillery" and "heavy battery," which are constantly employed to denote something heavier than the normal armament of field artillery, seem to require a more precise definition than has hitherto been accorded to them.

In our own war establishments the term "heavy" artillery embraces only batteries armed with 60-pounder B.L. guns, organised as units of the field army, and forming an intrinsic part of each of our army divisions; but notwithstanding this, the term is generally used in this country as well as on the Continent to embrace everything from our 60-pounder shrapnel-firing gun batteries to the German mortar batteries with their siege equipment, firing common shell only, and "principally used against permanent fortification."[1]

British Heavy Artillery.

2. *Matériel.*—A reference to the handbook of the 60-pounder B.L. gun which forms the sole armament of our heavy batteries will show that the equipment has been designed with a view to bringing into the field the heaviest long-range gun possible, consistent with sufficient mobility and rapidity of service, to enable it to complete the tactical *rôle* of artillery in the field army, where the Q.F. gun of the field artillery, owing to its shorter range and lighter shell, would be found inadequate, and where the howitzer of the field artillery would not serve the purpose owing to its shorter range and less effective shrapnel fire (*i.e.*, as regards depth of zone effectively covered). The proportion of shrapnel to common shell (lyddite) is seven to three.

3. *Organisation, Establishment, and Training.*—A heavy battery forms an intrinsic portion of the artillery of every British division, and is absolutely identified with its division in divisional and command training. For convenience of peace training, the batteries are brigaded in two brigades, for brigade instruction, training, and gun practice; but on mobilisation the brigade organisation ceases to exist, and batteries mobilise with their

[1] Drill Regulations for the heavy artillery of the German Field Army. It will be convenient, in the first instance, to define precisely what we mean by "heavy artillery" in the British Service.

division; they are not, however, brigaded with any other artillery units on mobilisation, as the special nature of their tactical employment would make such an arrangement even more incongruous than brigading howitzers with Q.F. batteries. The heavy battery is to be regarded as a unit to be employed by the C.R.A. of the division under the immediate orders of the G.O.C. in intimate connection with his most detailed plan of operations, much in the same way as the corps artillery was formerly dealt with by the army corps commander.

Gun practice is carried out at the field artillery practice camps under the same staff as for field artillery, and comprises a programme specially adapted for its more extended *rôle*.

4. *Personnel.*—It will be seen that the identification of the British heavy artillery with the field army is complete; but the *personnel*, both officers and men, are furnished by the garrison artillery. This arrangement is necessary, in view of the heavy weights that have to be handled both in the equipment and ammunition requiring men of the size and physique of the garrison gunner; the heavy horses, 16.2 hands and weighing 1,400 lbs., also require a bigger driver than the field artillery driver, who could not even reach up high enough to groom them. The arrangement is also desirable from another point of view. The best officers in the garrison artillery are always keen to get a tour of service in a heavy battery, whereas such service in the field artillery would be unpopular. The training with the field army thus obtained by a considerable number of garrison artillery officers is a most valuable asset to themselves and to the Army, and fits them for a more extended *rôle* than if they were confined solely to coast-defence work.

5. *Tactical Rôle.*—The *rôle* assigned to heavy artillery in "Combined Training" (p. 117) is as follows:—

"Its principal duty is to silence at distant ranges hostile guns which may command lines of advance, search and enfilade points which the lighter guns can only reach with frontal fire, destroy villages and houses held by the enemy, and in the final stages of the attack to support the firing line, its great shell power and long range enabling it to bring a powerful and concentrated fire to bear on the points selected for assault.

"The chief object of its long-range fire during the general action is to sweep as large an area as possible within the enemy's position. This cannot be effected if the guns are placed too far from the front of the position to be attacked. Owing to its want of mobility, heavy artillery should rarely approach nearer than 4,000 yards from the enemy's position; but at decisive moments it may be necessary to approach within that distance."

"Field Artillery Training" (p. 222) says:—

"Occasions may well occur when, to gain decisive results, it will be necessary to mass heavy guns in line with those of lighter calibre. . . . . their fire is of special value against

localities, buildings, and entrenchments. If well protected and placed on the flanks of a defensive position in an open country, it may compel a turning movement on so wide an arc that time valuable to the defenders may be gained."

"Combined Training" (p. 130) continues with regard to the defender:—

"His heavy artillery should be sufficient to protect the front and flanks of his entrenched position, to prevent the enemy's guns from coming into action at short range, and to force his infantry to extend while still at a distance."

It is abundantly clear that those who dictated the specification of our 60-pounder gun and carriage, and inspired the paragraphs above quoted from "Combined and Field Artillery Training," and who further wisely decided that the gun practice of heavy batteries should be carried out at field artillery practice camps, were influenced consistently throughout by the one idea of identifying our heavy artillery with the field army for the purpose of carrying out a *rôle* properly belonging to the artillery of the Field Army, *supplemental* to that of the field artillery, for performing tasks somewhat beyond its power.

We may congratulate ourselves that our General Staff has from the outset kept a well-defined end in view, and worked up to it. There has been no divorce of heavy artillery from garrison artillery, and no ill-assorted union forced on the field artillery. The result is that while our heavy artillery is completely identified with the field army, it still maintains its individuality, being tempted neither by tradition nor training to encroach on the proper domain of field artillery, and thus endanger its utility by degenerating from good heavy artillery into indifferent heavy *field* artillery.

Our General Staff has not been for a moment diverted by the picture of the field army being held up by barrier forts (*forts d'arrêt*) or strongly entrenched positions of a semi-permanent character, which require a more powerful artillery to cope with them; or induced thereby, to tack on to the field army, heavy howitzer batteries destined for their destruction. Such a *rôle* belongs clearly to a special organisation which would be added to the field army as required, and is in fact already provided for by our mobile brigades of medium siege howitzers. ("War Establishments," pp. 164-167.)

6. *Mobile Medium Siege Brigades.*—"Garrison Artillery Training" (Vol. II., p. 2), states:—

"Medium siege brigades (consisting of four batteries of 6-inch howitzers) will be horsed and organised as mobile units. It is intended that in addition to being available for use in a siege, they should be utilised if required for work in the field. When thus employed, the ammunition columns, of which there is to be one for every two batteries, will accompany the batteries." It will be seen later on that this organisation corresponds nearly to the German heavy artillery.

7. *Summary.*—There is, therefore, no doubt in our minds as to the field army having got exactly what it wants in the *nature* of heavy artillery. Constituted as it is, it can, and indeed has, reached a very high degree of efficiency, probably higher than would have been possible under any other organisation, and the conditions (with one exception[1]) are favourable for reaching the highest state of efficiency which it is possible to attain.

The German Heavy Artillery.

8. *Matériel.*—The heavy artillery of the German Army is armed with 6-inch howitzers and 8.2-inch mortars. The former travel on their firing carriages; the latter have a travelling carriage distinct from the firing carriage, which is always mounted on a platform for action. The projectile in both cases is the common (H.E.) shell.

9. *Organisation and Establishments.*—It is believed that the complement of heavy artillery for a German army corps will be four batteries of four pieces each, organised in two battalions, one being a howitzer battalion, the other a mortar battalion. It appears that these battalions of heavy artillery are allotted to army corps for training and administration; but that they do not necessarily accompany their army corps into the field; neither are they maintained throughout the year as mounted units forming an integral part of the peace establishments of the field army, taking their part in the entire course of combined training on an equal footing with the field artillery and other constituent parts of the army corps to which they belong, though it is understood that a beginning has been made in this direction.

10. *Personnel.*—The *personnel* is drawn entirely from the foot artillery.

11. *Training.*—There is a Training Manual (Part III. of the Regulations for Foot Artillery, 1906), entitled "Drill Regulations for the Heavy Artillery of the German Field Army," and altogether distinct from the Regulations for Field Artillery. It is very complete; its existence, however, tends to accentuate the division between the so-called heavy artillery and the field artillery, instead of cementing their co-operative union with the field artillery as in the British Service by referring both branches to a common training manual. The reason for this, is however, apparent when we consider how widely different is the equipment and, as we shall see later on, the *rôle*, of the German heavy artillery from that of field artillery.

12. *Rôle.*—The introduction to the Manual states that "it is the duty of the heavy artillery with a field army to pave

[1] It is inevitable that the lieut.-colonel must lose his command on mobilisation. Thus the great attraction of a command on active service, which secures the keenest spirits among the majors, no longer is an inducement to a lieut.-colonel to serve in this branch of the R.G.A.

the way for the infantry attack against strongly fortified positions and *forts d'arrêt*. But whilst the sphere of action of mortar battalions is in this respect a limited one, the action of the howitzer battalions more closely resembles that of other arms on the battle-field, and they will furnish a valuable support to the field artillery engaged with the hostile artillery. During the preparation of the infantry attack against the *points d'appui* of an enemy deployed for battle or holding a fortified position, the effect of their fire may be of the greatest importance."

We have, therefore at the outset a marked distinction between the *rôles* of the mortar battalions and the howitzer battalions which combine to make up the German heavy artillery; and in the regulations which follow with reference to the *rôle* and employment of the howitzer battalions there is a very decided convergence towards that of field artillery.

13. *Employment.*—As regards the employment of heavy artillery in the field, the Manual states that "heavy artillery should be placed in position as soon as circumstances call for its employment, and once this has been decided upon, it is essential that the whole of the guns should be deployed, and their *full fire effect in mass*[1] developed with the least possible delay. Heavy field howitzer batteries are of great value when used against stationary targets; the explosive action and splintering effect of their shell, specially fit them for engaging shielded batteries and firing at objectives covered by strong covered field works, in shelter trenches, localities, high woods, etc. Mortar batteries are of still greater value for breaking down cover, and are therefore *principally used against permanent fortifications*.[1] As a general rule, heavy artillery works by battalions, and its tactical employment *is benefited by the local concentration of batteries*."[1]

This last paragraph is most significant when compared with the regulations in the British Service, in which the normal employment is by simple batteries or sections, and only for special conditions are batteries brigaded temporarily in groups of two or possibly three, under the Commander-in-Chief of two or more divisions, and this latter kind of employment is not even legislated for specially in our Manuals, although it would on occasion obviously be resorted to.

The German regulations continue:—"In order that the greatest fire effect may be obtained, heavy artillery will, as a general principle, approach as near to the enemy as is consistent with adequate concealment from view during deployment." This practically puts the heavy artillery on all fours with field artillery; it seems doubtful whether it would be literally acted up to.

The German regulations proceed to state that "the weakening of the enemy's *points d'appui* can only be achieved by

[1]The italics are the writer's.

crushing his artillery, and consequently this must be the first duty of the heavy artillery. . . . . Subsequently the keeping under of the hostile artillery will become the duty of a portion of the field artillery, while the light and heavy howitzer batteries, with the remainder of the field artillery, devote themselves to the further task of firing on the point to be attacked, and so preparing it for assault.

"As soon as the defender shows himself, the heavy artillery should increase its fire, and after sufficient impression has been made on the firing line, turn against the rear entrenchments, more especially against the more important points of the infantry fight.

"Further, while the assault is being actually delivered, the heavy artillery will continue to fire on the points of assault up to the last possible moment. . . . . .

"It is therefore desirable to depute officers of the heavy artillery to accompany the infantry and keep up telephonic communication with the artillery battalions."

In the pursuit "it must exert itself by utilising to the full every man and horse to keep well up in the pursuit in order that it may be present when wanted, and assist in quickly and relentlessly breaking down the centres of resistance in buildings, villages and localities."

These last four paragraphs point to the tactical employment of German heavy artillery on similar lines to that of British heavy artillery; they refer obviously to the more mobile howitzer batteries and not to the mortar batteries, and expose in the strongest light the different *rôle* which is expected from the howitzer battalions when employed in a purely field operation from that which they are required to perform in conjunction with the mortar battalions in the attack of permanent or semi-permanent fortifications and carefully elaborated field entrenchments, which require to be destroyed before the enemy can be driven out of them.

14. *Employment of Mortar Battalions.*—Special instructions are then given for the use of mortar battalions in combination with howitzer battalions in the attack of fortresses and *forts d'arrêt*, the guiding principle being that "in the attack on *forts d'arrêt*, it must be remembered that freedom of movement for the army depends upon the obstacle being quickly overcome."

15. *Raison d'être of Heavy Artillery with Field Army.*—In the last paragraph really lies the keynote to the situation as regards the German heavy artillery; it gives in one sentence the *raison d'être* of heavy artillery with the field army, the *rôle* of which is more fully defined in the introduction to the manual. (See para. 12, ante.)

The employment of heavy artillery in the more mobile *rôle* of actively supporting the field army under normal conditions, is admittedly confined to the howitzer battalions, and even these

have the destruction of *matériel* as their primary *rôle*, although the regulations for their employment against the enemy's troops in trenches are in every way admirable, and seem to guarantee that the greatest value possible will be obtained from their common shell against the enemy's *personnel*, provided always that their tactical handling in combination with other troops has been adequate to the occasion.

The paramount consideration for Germany at the outset of a Continental war must be to obtain freedom for her field armies to manœuvre; this freedom can, in regard to certain contingencies, only be secured by the immediate destruction of all material obstacles which hamper it, such as may be found jealously guarding a neighbouring frontier; to destroy these obstacles without delay must of necessity be the primary object, which dictates the constitution and organisation of her heavy artillery.

Where we should call on a special organisation of medium siege brigades, to deal with special conditions, outside the normal *rôle* of our field army, and yet not amounting to a regular siege, Germany, on the other hand, would have to face, as an initial and insistent requirement of the normal situation at the commencement of a Continental war, the immediate employment of heavy artillery, similar to, and even heavier than, our medium siege artillery; and has, therefore, wisely decided to incorporate it in the Army Corps establishments, though it is understood that its actual allotment on the outbreak of war will depend on circumstances.

16. *Secondary Rôle of German Heavy Artillery.*—Employment against *personnel* is, therefore, in the German heavy artillery, a distinctly secondary *rôle*—it is not the *rôle* which has dictated the equipment, organisation, and establishments—but it is provided for in the German Regulations, so that as much value as possible may be got out of it in this connection when the opportunity offers, and in order that the training shall embrace, as far as may be, this secondary *rôle*, in addition to the primary one.

This secondary *rôle* (so far as it can be satisfactorily performed by howitzer batteries firing common shell) is, however, for foot artillery, the more difficult, as it entails for its efficient performance the same high degree of training with other arms as the field artillery. Failing this, it can never expect to attain the maximum results possible, and will certainly compare unfavourably in this respect with the British heavy artillery, which is literally identified with the field army, and whose equipment, organisation, establishment, and training have been deliberately planned with that object in view (employment against *personnel*) as its primary *rôle*.

French Heavy Artillery.

17. In France heavy artillery has not received so much attention as in Germany, and has, indeed, only begun to

be seriously considered since 1905. France, like Germany, and, presumably, for the same reason, has confined her organised heavy artillery to howitzer batteries firing common (H.E.) shell, and she does not appear to contemplate long range, high-velocity guns, firing shrapnel as their principal projectile.

18. *Equipment.*—The Rimailho howitzer, with which the French heavy artillery is to be armed, is probably familiar to most of the readers of this journal. The calibre is 6 inches, it fires a Melinite shell weighing 94 lbs., it has an automatic breech opening arrangement, which is supposed to enable it to fire four rounds in a minute; but looking to the weight of the shell it seems that the impediment to rapid loading would arise more on that score than on account of any delay in opening the breech. There are two carriages: one for travelling, and one for firing. It is claimed that the transfer of the howitzer from the travelling to the firing carriage can be effected in two minutes; this is, probably, correct, only as a smart repository exercise, when the firing and travelling carriage are in suitable juxta-position.

The travelling carriage has 8 horses, the firing carriage, and 3 ammunition wagons, 6 horses each, making a total of 32 per sub-section, or 64 per section, as against 46 in a British heavy battery section for guns and ammunition only.

19. *Establishments, Organisation, and Personnel.*—Two guns will constitute a battery, there are to be 120 batteries in all, *i.e.*, 6 with each of the 20 Army Corps. The *personnel* is provided by the fortress artillery.

20. *Training.*—The training of the French heavy artillery is still somewhat in embryo, but will probably follow the same line as the German, the conditions governing its employment in both armies being similar.

Looking, however, to the fact that the French heavy artillery will contain 6-inch howitzer batteries only, sufficiently mobile to manœuvre with a field army, and no batteries of heavier ordnance, destined solely for the attack of fortresses, or *forts d'arrêt*, as in Germany—it may be surmised that it will embrace more completely what we have termed the "secondary *rôle*" of the German heavy artillery.

The full development of the possibilities of the howitzer batteries in the field, will not be hampered by an ill-assorted union of mobile ordnance firing from wheeled carriages, with heavier ordnance (mortars) of position, firing from platforms. But even so, there will still remain a fundamental difference between French and British heavy artillery; the attack of *personnel* in the open, in trenches, or behind accidental or temporary cover, will still remain the *secondary rôle*, and the destruction of permanent or semi-permanent fortifications, or field works, will be the primary *rôle*, as indeed the equipment and ammunition fully testify.

If more powerful ordnance is required to cope with material obstacles, which are of such a nature as to be able to withstand successfully the Melinite shell of the 6-inch howitzer, then, probably, the French will improvise battalions of heavier siege howitzers, to co-operate with the 6-inch howitzer battalions, in order to destroy such obstacles and secure to the field army with the least delay possible, that freedom of movement which is essential to its success.

But these battalions of heavier howitzers, to be available when required, must be organised in time of peace. There would be no need to hamper the heavy artillery of the field army by identifying them with that organisation, but rather they should be organised and trained for a semi-mobile *rôle*, to be attached to the field army at all manœuvres, in which the destruction of *forts d'arrêt* or strong field works is a feature, and the batteries employed as *batteries of position;* their technical training would be strictly on siege lines, and they would, once a year, be supplied with means of transport to enable them to practise the occupation of positions in connection with a scheme which would include a skeleton or imaginary field force, if no actual operations with a portion of the field army took place at manœuvres.

Japanese Heavy Artillery.

During the war with Russia, the Japanese had no heavy artillery, as we understand the term. Prior to the fall of Port Arthur, they improvised a *battery of position* with four 4.1-inch Canet guns, captured at Nan-shan, and a mobile battery of somewhat antiquated 6-inch howitzers, captured at the same place.

After the fall of Port Arthur, a very large number of guns, howitzers, and mortars, varying generally in calibre from 3.5-inch to 5.9-inch (there were even ordnance of heavier calibre sent up, including 11-inch mortars) were organised into batteries and battalions by the foot artillery, under the command of a major-general of that arm. The majority of these, however, were not mobile, and none of them really come under the category of modern heavy artillery of a field army; they were employed in that Titanic struggle which raged so long round Mukden, and which, though usually referred to as the "battle" of Mukden, far more resembled the earlier operations of a siege.

The Japanese were, however, so impressed with the advantages which would have accrued to them, if they had possessed a really mobile heavy artillery, organised and trained as a part of the field army, that they have recently made a beginning by creating two brigades of "heavy field artillery." Each brigade will consist of two or three regiments, and each regiment of six battalions of four howitzers each; one brigade, consisting of two regiments, will be armed with 6-inch howitzers, and the

other with the existing 4.8-inch howitzer, which may be replaced by the new 4.2-inch howitzer, if the latter proves a success.

The conditions, which have dictated the incorporation of howitzer batteries only, in the Japanese heavy artillery, cannot be said to resemble those of Germany or France, and we must look for other reasons than those which obtain in the case of these two Powers.

It will at once be evident that the lighter equipment, *i.e.*, the 4.8-inch howitzer, is on all fours with our field artillery howitzer batteries, and that to class it as "*heavy* field artillery" seems unnecessary.

As regards the 6-inch howitzer equipment, however, there can be no question as to the correctness of its classification as "heavy"; and we are now met with the question: why have the Japanese included howitzers only in their heavy artillery, when the war abounded with instances in which a few heavy high-velocity guns of long range, firing shrapnel as their principal projectile, would have been invaluable? Possibly, they intend to arm some regiments with such guns later on. It is, however, probable that they have been influenced by two arguments:—

1. The great difficulty of finding suitable transport for heavy guns, as compared with howitzers throwing an equally heavy shell. This difficulty is likely to be a very serious one for Japan for many years to come.

2. The experience of the recent war, which was a veritable war of earthworks, has so impressed the Japanese, with the obvious lessons dictating the necessity for heavier howitzer batteries organised as mobile units, to accompany the field army, that they have, perhaps, not sufficiently studied the less obvious lessons which many battles furnished, of the value of long-range high-velocity guns, firing a shrapnel with a deep effective zone, twice as deep as that of a field gun, and incomparably deeper than that of any howitzer.

SUMMARY.

The important *rôle* which medium siege artillery fulfils, when co-operating with a field army, has only been briefly touched upon; it is a subject which requires more space than can be given to it in this article. In our service, this branch of the artillery has lately assumed a value and importance which has promptly made itself felt, in the higher training it is receiving in respect to its *rôle* as a mobile arm.

Whereas heavy (gun) batteries will probably be of the greatest utility, and attain the highest degree of efficiency, as organised at present, *i.e.*, as integral parts of army divisions—

it seems certain that medium siege brigades will attain their maximum efficiency, and be of the greatest value by retaining their distinct organisation, which enables them to be attached to the field army as required, without normally forming part of it. Training in peace time with the field army, from time to time in suitable combined operations, is, however, much to be desired, as, although it is not recommended that medium siege brigades should be *identified* with the field army, it is urged that they should constantly be *associated* with it, to accustom commanders of large mixed forces to handling them suitably in co-operation with other branches of the artillery and other arms of the service, as well as to enable the *personnel* of the siege brigades to become familiar with their work in the field in actual combination with the field army, and to give artillery commanders an opportunity of practising their difficult duties in command of mixed branches of artillery, working in combination for the furtherance of a common object.

MODERN METHODS OF MILITARY ORGANISATION.

By Lieut.-General F. H. TYRRELL, Indian Army, Colonel 74th Punjabis.

THE methods of military organisation are governed by no fixed rules of science, but have always varied, and must always vary, according to the character of the people, and the social and political circumstances of the nations which employ them. Generally speaking, systems of military organisation may be broadly divided into two categories or classes: the natural, in which the organisation for war corresponds with the political organisation of the nation, as is the case in most barbarian or semi-civilised States; and the artificial, in which the Army is organised and regulated as a separate branch of the national service for the sole purpose of war. Examples of the first class may be seen in the tribal system of the ancient Israelites, and in the Highland clans; and at the present day, among the Afghans and the Bedouin Arabs, and other nomadic and barbarous peoples; while the second type is exemplified by the Greek phalanx and the Roman Legion, and has attained its highest development in the armies of the modern European States at the present day. It is with the latter only that we propose to deal in the following paper, sketching briefly the steps by which the present complex system of military organisation has been gradually evolved from the simple century or company which was the highest, or, perhaps, the sole, tactical or administrative unit of military formation in Europe in the middle ages.

On the overthrow of the Roman Empire in Western Europe, its artificial military system was replaced by the natural systems of the barbarians who overran and occupied its provinces. These developed into the Feudal system, the chief feature of which was the tenure of land by the condition of liability to military service. The barons owed service to the king; the common people owed service to the lords; the tenants owed service to their landlords. When an army was assembled for war, every prince or baron was at the head of his own subjects or clients, and what organisation there existed, was rudimentary and temporary. The value of professional soldiers, who made war their business and study, as compared with these feudal levies, was early recognised, and we find King Richard Cœur de Lion largely employing these mercenary bands in his wars. During the period of the

Crusades, the organisation that was lacking in the feudal levies was supplied by the orders of military monks, knights Templars, knights Hospitallers, Teutonic knights, and others, who transferred the order and the discipline of the Church from the Convent to the field of battle. In the fourteenth century the invention of gun-powder and adoption of fire-arms revolutionised the military systems of Europe, and restored to infantry the important *rôle* on the battle-field, which had been usurped by cavalry under the feudal system. The success of the Swiss mountaineers, whose armies were entirely composed of infantry, against the feudal chivalry of Austria and Burgundy, in the fifteenth century, also contributed to the same result, and bands of Swiss foot-soldiers were hired as mercenaries by the King of France, the Pope, and other Italian Princes. The establishment of the Turkish Janissaries in the fourteenth century afforded a conspicuous example of the value of a body of troops regularly paid, lodged, clothed, and rationed by the State, and the following century saw the foundations of the Standing Army system laid in Europe by the formation of companies of professional soldiers for the royal service.

In 1445 the Dauphin, afterwards Charles VII., formed two companies of cavalry from the Scottish men-at-arms, who followed Archibald Earl of Douglas, nick-named Tine-man, or Lose-man, to France, to aid the French against King Henry the Fifth. After the death of the Earl in his last lost battle at Vernuil, the Dauphin took these troops into his own service, forming them into the Scots or First Company of the Garde-du-Corps, and the Scots or First Company of Gens d'armes (men-at-arms or heavy cavalry). And other companies of heavy and light cavalry, and of mounted musketeers, were subsequently formed by him and his successors. In 1563 Charles IX. raised ten companies of foot, of 50 men each, under the title of the "Ten Ensigns of the King's Guard," which subsequently became the Regiment of Gardes Françaises, and four other regiments of foot, afterwards known in the French service as *Les Vieux*, were formed about the same time.

King Henry the Seventh of England formed the company of Yeomen of the Guard, and his son and successor, Henry VIII., followed suit with the company of Gentlemen-at-Arms; both of which formations have survived to the present day. All the monarchs of Europe set themselves to the task of raising Standing Armies of Regular troops, to replace the undisciplined and imperfectly trained feudal militia and the unreliable mercenary bands. Spain was the first country to place a formidable Royal Standing Army in the field, and France, the Empire, and Sweden were not backward in following the example thus set before them. There was no Standing Army in Great Britain until the formation of Cromwell's famous new model army during the Civil War, and the first formations of the present British Army date only from the restoration of Charles II. in 1660.

At first the company was the administrative unit, and after the invention of fire-arms, the infantry company was composed of pikemen and musketeers in the proportion of three-fourths or two-thirds of the former to one-fourth or one-third of the latter. For tactical purposes they were separated: the pikemen of several companies being formed in squares or "battalia," while the musketeers were on the flanks in line six ranks deep. This division of the company into separate commands was found inconvenient, and also the company was inconveniently small for an administrative unit, and this led to the assembly of ten or more companies in a "Regiment" or military government; the senior captain took the command, with the title of colonnello or column commander; and the staff duties of the new command were distributed among the other captains; one being scout-master, another quarter-master, a third baggage-master, and so on; the captain who commanded the company of picked men, called the "Forlorn Hope" or "*Enfants Perdus*," which was always kept at a greater strength than the others, became the colonel's deputy or lieut.-colonel; when fresh troops were raised, they were now raised by regiments, and no longer in independent companies. The command of a regiment was eagerly sought after, as it was a source of considerable profit, for all the funds for the maintenance, clothing, and equipment of the regiment passed through the hands of its colonel. He also had the nomination of the captains, who procured their companies through him by purchase or favour. Their companies were a minor source of profit to them, and they counted upon re-couping themselves for the sums they had paid for their commissions by profits made out of their contingent allowances. For instance, to obviate or minimise the abuse of false muster-rolls, a captain was allowed to include in his company roll a specified number of "paye-mortes" or "men-of-straw," for whom he might legally draw pay and rations, though they had no real existence. The colonel and lieutenant-colonel continued to own companies in their regiments until the close of the eighteenth century. Their companies were commanded by captain-lieutenants or brevet-captains, while the emoluments went to the field officers, who were titular captains.

The commands of regiments and companies came to be looked upon as valuable properties, and were sought after by men of rank and birth who had hitherto confined their attention to the cavalry, according to the sentiment engendered by the feudal system. For long it was found a difficult matter to induce noblemen and gentlemen to accept commissions in the infantry, and still more so in the artillery, which was looked upon as a civil, or at least a non-combatant, branch of the military service, like the commissariat and train nowadays. The colonel of a regiment was often an absentee, being employed as a general officer or otherwise, and the regiment was commanded by the lieut.-colonel. The rank of captain came

next; the major was the regimental staff officer, and occupied a position corresponding to the modern adjutant. He was usually an experienced veteran who was responsible for the drill of the regiment, and who instructed the noble and often ignorant field officers and captains in their duties. Hence we find that in regiments of Royal Guards, in which officers held an army rank superior to their regimental one, the captains were lieut.-colonels and not majors, as was the case in our own regiments of Foot Guards until 1870. It was only towards the close of the eighteenth century that the major had become by a natural process of evolution the superior of the captains; and we find in the orders for the raising of new regiments at that time the stipulation that "the major shall be the third officer in the regiment."

The promotions of subaltern officers were made in their own Companies; officers were not graded on a single list for the whole regiment until the middle of the eighteenth century.

As the pecuniary value of the command of a regiment increased in proportion to its strength, the number of companies in a regiment was sometimes as many as fifteen or twenty; but as such strong regiments were found inconveniently large for tactical purposes, the expedient was adopted of dividing them into the battalions which were the tactical unit of infantry. Hence we find regiments in the standing Armies of Europe in the seventeenth and eighteenth centuries composed indifferently of one, two, three, or four battalions, and some of even more. The Gardes Françaises had six battalions and the regiment of Tyrolese Jägers had as many as twelve battalions, and at some periods still more.

Towards the close of the seventeenth century, Grenadiers were instituted in battalions of infantry to meet the new conditions introduced into European warfare by the improvements in fortification effected by the genius and science of Vanban and Cohorn. They originally consisted of four or six of the best men picked from each company, armed with grenades to search the ditches and covered ways of a fortress, and with hatchets to hew down the palisades. They were afterwards collected into one company, in accordance with the continual and rightful tendency to assimilate the tactical and administrative unit, which is a guiding principle of modern military administration.

The pike had by this time been laid aside as an infantry weapon (though the officers and sergeants retained it under various forms and names as spontoon, halbert, etc., for a century longer), and all the soldiers of a battalion were uniformly armed with musket and bayonet. But the company was still not looked upon as a tactical unit. On parade the battalion was told off in platoons of equal strength without reference to the companies to which the officers and men belonged. The Grenadier company took the right of the line and the head of the column, but on service it was frequently

detached from its own battalion, for it was the custom to form the grenadiers of all the regiments in an army into provisional battalions for a campaign, a siege, or a battle. The same practice was afterwards adopted with light companies, and as late as 1817 all the grenadier and light companies of the King's and the Company's regiments on the Bengal establishment were collected in provisional grenadier and light battalions to constitute a reserve for the army employed in the Mahratta war.

Grenadiers received a higher rate of pay; their officers were picked from the whole body of officers of the regiment, and these had the privilege of choosing their men out of all the other companies of the battalion.

It was about a century subsequent to the establishment of the grenadiers that a light company was added to each infantry battalion to supply the want of trained skirmishers which had made itself felt during the wars in America.

In the cavalry, the independent companies (called troops in England) were similarly collected into regiments. Two troops were united to form the squadron, which was the accepted tactical unit of cavalry. Occasionally this process was reversed; the four strong companies of the French King's Garde-du-Corps furnished eight squadrons for the field.

The Dragoons, who were first organised in independent companies of mounted musketeers, were also collected into regiments. They were at first mounted infantry pure and simple, who only used their horses for the purpose of speedy arrival at the scene of action. They became a hybrid force, trained to fight both on foot and on horseback, and sentiment and necessity combined to incline them more and more to adopt the *rôle* of cavalry. Moreover, in those times voluntary enlistment was the rule in all the armies of Europe, and soldiers were difficult to procure when an army required to be augmented for war. Cavalry took a long time to train, and it was much easier to augment that arm by converting regiments of dragoons than by raising new regiments of horse. In all the armies therefore the dragoons gradually exchanged their original functions of mounted infantry for those of cavalry. Our own time has witnessed a revival of the service of mounted infantry on much the same lines as those of the original dragoons.

The three arms of the Service were then horse, foot, and dragoons. Artillery and engineers were reckoned as non-combatants, and for long had no military organisation.

The Royal Regiment of Artillery was not formed in the British Army until the beginning of the eighteenth century, and the Royal Engineers nearly a hundred years later.

The regiment was the highest unit of organisation in peace time. In war an army was divided into main body, right and left wings, and reserve. As armies grew larger and the exercise of command over an extended line became more difficult, regiments were assembled in brigades, and subsequently brigades into divisions, at the commencement of a war or a

campaign. These formations were modified or altered according to circumstances, and were always dissolved at the conclusion of the war.

There were no Army Reserves and no automatic system of increasing an army to war strength, or reducing it to a peace footing such as exists in all the Continental armies to-day. Prussia was the only State that employed an organised system of compulsory service for the Active Army. The conscription had been established by King Frederick William throughout his dominions about the year 1735, every parish being obliged to furnish its quota of recruits; and it was owing to this system that his son Frederick the Great was able to withstand and baffle all Europe in arms during the Seven Years' War. France possessed from 30 to 40 recruit or depôt battalions, which served for the reception and training of recruits for the Service. In Russia the nobles were requisitioned to supply a certain number of serfs to replenish the ranks of the army; temporary service in the Territorial Militia was compulsory in most countries.

But the standing armies continued to be chiefly dependent on voluntary recruiting up to the time of the French Revolution. When war broke out new regiments were raised, and new battalions added to existing regiments. All sorts of expedients were resorted to for procuring soldiers: high bounties were given: poachers and other offenders were given the choice of the gaol or the barracks: the King's Press was used, and abused most damnably. Mercenaries were hired by whole regiments at a time, and the Swiss cantons in particular did a roaring trade in *chair á canon*. When the war was over sweeping reductions took place: many regiments and battalions were disbanded altogether, the strength of the remainder was reduced, and numbers of officers were placed on half pay. The slow conduct of operations in days when there were no steamers or railroads, and but few roads, and the universal practice of going into winter quarters, enabled the recruiting and training of the troops to be carried on throughout the course of a war; and soldiers were scraped together somehow during the winter to refill the gaps made in the ranks by the summer campaign.

The French Revolution revolutionised many things and among others, military organisation. Carnot, who became the War Minister under the Republic, possessed a wonderful genius for army administration. He instituted a strict system of conscription, which produced such swarms of recruits that the French armies were equal, or superior, in numbers to their adversaries at all points, although France found herself assailed at once on all her frontiers by the forces of Great Britain, Holland, Prussia, Austria, Savoy, and Spain. He re-organised the army, reforming all the infantry in three-battalion regiments, of which one battalion was a regular battalion from the old Royal Standing Army, and the other two were made up of national guards, volunteers, and conscripts. Two of these regiments (or demi-

brigades, as they were called in the Republican jargon) formed a brigade, and two brigades formed a division for the field. The old cavalry regiments were for the most part kept intact, owing to the difficulty of improvising cavalry; the artillery was reformed in brigades of horse and battalions of foot artillery; the departments of the ordnance, intendance, medical service, and military train, all received a regular and permanent organisation. Carnot also instituted depôts for the training of troops to repair the waste of the army in the field. Napoleon profited by the reforms of Carnot and perfected them. He organised all his cavalry in regiments of four squadrons, and his infantry in regiments of three field battalions, and a fourth depôt battalion, which received and trained the recruits and supplied the field battalions with drafts. The armies which he put into the field were larger than any that had been hitherto seen in European warfare, and the number of divisional commands made too much work for the General Staff. Napoleon, therefore, instituted a new unit of command, the *corps d'armée*, or army corps, which united two or more divisions under one chief. The system of formations devised by Carnot and perfected by Napoleon is now stereotyped in all the armies of Europe (with the exception that the battalion now consists generally of four strong companies instead of eight small ones) except that of Great Britain. The other great military Powers, beaten and humbled by the French arms, made haste to adopt the institutions which had given victory to their rivals, established systems of conscription, and reorganised their armies on the French model.

Hitherto the auxiliary departments for the supply of the armies had been manned by civilians, and their transport was hired from contractors. Napoleon organised his supply departments on a military basis, officered by a regular staff of intendants with relative military rank, and he established an army train, or military transport corps, organised in squadrons and battalions. Similar institutions were speedily adopted in all other European armies.

Two features of Napoleon's system deserve attention: one was his predilection for *corps d'élite*, or picked troops, a principle that has now been almost entirely departed from; the other was his delegation of extensive authority to the colonels of regiments. Not only had every infantry battalion in his army its flank companies of grenadiers and voltigeurs, but every regiment of cavalry and artillery had its *compagnie d'élite*, into which its best men were drafted, and which was distinguished by a particular dress or equipment. And his Imperial Guard formed a whole army corps of picked troops, into which the best officers and men were drafted from the line. Modern opinion is against this practice.

He allowed great powers to the colonels of regiments, holding them responsible for the efficiency of their commands, and permitting no interference by general officers in the management of their regiments. The duties of the French marshals and

generals of division and brigade were the leading and directing of their troops in the field, and they had little or nothing to do with their management. This greatly simplified the work of army administration, and it was a sound principle, which might be followed with advantage in all armies, as it is to some extent in the German army to-day.

The system of recruiting armies by conscription had entirely superseded recruiting by voluntary enlistment in the nations of Europe at the beginning of the nineteenth century, with the exception of Great Britain, which, thanks to her insular position and to the patriotism of her people, was still able to recruit her Army and her Navy with volunteers for the most part. But the twenty years' war against the French Republic and Empire could not be carried on without some resort to compulsory service, and the gaps in the *personnel* of the navy were filled by means of the press-gang, while the ranks of the army were refilled from the militia, the cadres of which were kept complete by the ballot. Lists of eligible recruits were kept in every parish, and the number required to fill the ranks of the local militia corps were procured by ballot, "scraped off the church doors into the militia." The rich escaped the obligation by purchasing substitutes, the price of whom varied from twenty to forty pounds, according to the state of the market. Once a man was drawn for the militia, and found himself obliged to serve as a soldier in some station remote from his home, it was easy to persuade him to volunteer into a line regiment in the Peninsula or in India. Even the most unwilling recruits might be trusted to prefer the excitement of active service to the dull routine of barrack life in the United Kingdom. All through the long series of glorious campaigns in the Peninsula, the army was kept up to strength by drafts of volunteers from the militia, and the militia was kept up to strength by enforced compulsory service.

When Napoleon threatened the invasion of England, and formed a great camp for that purpose at Boulogne, in 1804, the British Government seriously contemplated introducing the system of conscription into Great Britain to provide for the national defence. But the introduction of the measure was forestalled by the voluntary action of the people, who everywhere enrolled themselves in volunteer corps in numbers sufficient to meet the most formidable attempt at invasion; indeed, practically the whole manhood of the nation was enrolled in these corps, and remained so enrolled until the end of the long war.

On the Continent the system of voluntary recruiting had generally given place to the conscription; but this was still only partial, and whole classes of the population remained exempt from its operation. A system of universal service had almost been reached by the establishment of the French National Guard, which had been originally intended to serve as a substitute for a Standing Army; but this force was imperfectly trained, and was subject to political influences, for which reasons it was discouraged by Napoleon, who treated it

solely as a reservoir of men for the Regular Army: "A man with a musket," he used to say, "is not a soldier." The potentialities of short service and a reserve system were still undreamed of; and their introduction was due to the exigencies of the situation, which Prussia encountered after her humiliation at Jena rather than to any foreseeing estimate of their incalculable advantages. Napoleon imposed on the conquered Prussians the condition of limiting the number of their Standing Army to 40,000 men; and the Prussian statesman and soldier, Stein and Scharnhorst, evolved a plan to neutralise this limitation by a system of short service, enrolling men for a period of three years, and at the conclusion of that time drafting them into a reserve, with the obligation of returning to the colours when called on, and replacing them by an equal number of fresh conscripts, who were in turn trained and passed into the Reserve; thus, when Prussia again took up arms against Napoleon in 1813, she was able, by calling up her Reserves, to place at once a large army in the field. This system was extended and perfected by the King, William I., afterwards proclaimed German Emperor, with the aid and guidance of his able advisers, the Chancellor, von Bismarck, and the Chief of the Staff, von Moltke; and in the teeth of great opposition from Liberal and Socialist factions, military service was made compulsory on every male able-bodied subject of the kingdom. Under the new system the Prussian Army was raised, with a comparatively slight increase of expenditure, to such an overwhelming numerical strength that the King was able to crush the resistance of Austria and France with ease, and to establish Prussia at the head of a resuscitated German Empire. All the other States of Europe were forced in self-defence to adopt a similar system of universal compulsory military service. The introduction of Carnot's system of conscription had raised the strength of the Standing Armies of Europe from tens of thousands to hundreds of thousands; the system of universal service perfected by von Moltke raised it from hundreds of thousands to millions. The Standing Army became a National Army or the nation in arms, and the only limit to its expansion is the extent of the population.

With an unlimited supply of *chair à canon*, the old shifts and expedients for augmenting an army to war strength were no longer necessary, and the army expanded automatically to a war footing, or similarly contracted to a peace one. Moreover, universal liability to service admitted of the establishment of a territorial system of recruiting and organisation. The Prussian conscript served in his company with his fellow-townsmen or villagers, and passed the whole term of his colour service at or near his own home. The whole country was divided into military districts for the recruiting and garrisoning of the troops corresponding exactly to their organisation for war. Two regimental districts were united in a brigade

district; two brigade districts formed a divisional district; two divisional districts made an Army Corps district. Each regiment of infantry comprised three battalions of four companies each; two regiments formed a brigade; two brigades a division, which comprised also divisional cavalry and artillery, jägers or light infantry, engineers, and train; a complete field army in itself. Two of these divisions united formed the Army Corps (of which there are 23 in the German Army), with corps troops and auxiliary services in addition. Even the regiment, the lowest administrative unit, could take the field by itself, having its own hospital, ambulance, and transport, all kept on foot in peace time, and capable of being augmented to war strength on mobilisation. The corps, divisional, and brigade commanders and staffs were all kept up in peace as in war, so that no fresh formations were necessary on the breaking out of war; the generals, staffs, troops, and auxiliary services were all accustomed to working together, in peace as in war. The machinery of administration was as simple as it was possible to make it; the tactical and administrative units coincided, and the commander of each unit was solely, as well as strictly responsible for the results of its training and discipline. This simplicity was accompanied by a strict economy. For example, the principal reason for the reduction of the number of companies in a battalion from ten or eight to four was the pecuniary saving thereby. Under the former plan eight captains and sixteen subalterns at least were required for the officering of a battalion; under the new system, four captains and twelve subalterns sufficed, thus saving the pay and allowances of four captains and four subalterns.

But though economy was strictly observed in the Prussian military system, it was never allowed to diminish the fighting strength of the army, or in any way to impair its efficiency. The Prussian, and, therefore, the whole German Army, under this system of universal and compulsory liability to military service, was no longer a Standing Army, such as had supported the thrones and defended the dominions of the Emperors and Kings of the Continent of Europe since the decay and disappearance of the Feudal System, but a real National Army, or a nation in arms.

The German recruit is taken at the age of 20 and enrolled in a company, the ranks of which are filled with his comrades and neighbours from his village or parish. He passes seven years in the Active Army, the first two with the colours, living in camp or barracks; the last five in the Reserve, living at home, drawing no pay, and returning annually to barracks for short periods of training. When 27 years of age, he passes into the Landwehr or Militia, which is an exact duplicate of the Active Army, and composed entirely of men who have served their seven years in it. He remains in the Landwehr till the age of 40, undergoing periodical trainings, and receiving no pay or subsistence except when called up for these trainings.

On the breaking out of war the Landwehr is embodied to take the place of the Active Army at home, and to supplement it in the field. From the age of 40 to 45 the German citizen is enrolled in the Landsturm or General Levy, in which all Germans between the ages of 17 and 45 are enrolled who are not serving in the army or the Landwehr. Under this system, the German Army has a peace strength of 600,000 officers and men, which is increased on mobilisation by calling up the Reserve of the army and embodying the Landwehr to a war strength of 3,000,000, exclusive of the Landsturm, which would furnish some millions more. For, after the ranks of the army have been filled to peace strength by the annual conscription, there still remain over many eligible recruits, who are passed at once into the Landsturm, and form what is called the Ersatz Reserve of untrained men. Most of the other Continental nations have closely imitated the German organisation of the national forces, in three successive lines of Active Army, and first and second bans or categories of Militia. The French, however, have only two, the Active and the Territorial Army.

It has been said that there are two, and only two, perfect human institutions in the world, in the organisation of which the means are precisely and absolutely adapted to the end in view; and these are the Roman Church and the German Army. Certainly for efficiency and economy, and simplicity, the German military system bears away the palm; all the other nations of the Continent of Europe, as well as the Turks and Japanese, have adopted the German system, but the copies always in some particular or other fall short of the perfection of the original. The French and Italians, for instance, have not adopted the German territorial system of recruiting in its entirety and simplicity for political reasons. The British have attempted to graft some of the essential features of the Prussian system on to our own ancient system of voluntary enlistment, but not with much success.

At the commencement of the great epoch of the Revolutionary and Napoleonic Wars, the British Army was, perhaps, the worst in Europe; weak in numbers, deficient in organisation and training and lax in discipline. Twenty years afterwards it had become, through long and continuous experience of the realities of war in hard fighting and arduous campaigns, the best army in Europe.

Twenty years of incessant warfare, and the genius of Moore and Wellington, had welded the British Army of the Peninsular War into a perfect fighting machine. The general and staff officers owed their advancement mainly to the natural selections of a long war. The cavalry regiments were organised in troops, which were assembled to form squadrons in the field. The artillery were formed in troops of horse and battalions of foot artillery. The infantry regiments were composed of three battalions, of which one generally remained in Great Britain as a depôt for the two serving abroad. The auxiliary services

of commissariat, transport, etc., had been organised by the Great Duke for his Peninsular campaigns, and perfected in the course of the war. The army was kept up to war strength, as we have said, principally by drafts of volunteers from the Militia, which was itself recruited by compulsory service. All the abuses of the army system of the eighteenth century, purchase, patronage, and court favouritism, flourished, and without impairing its efficiency, in the army with which Wellington said that he could go anywhere and do anything.

After the general pacification of 1815, the British Army was suddenly reduced to about a fourth of its war strength. Sweeping reductions were absolutely necessary in the state of the national finances, and the establishment of the cavalry was reduced to twenty regiments of three squadrons each, and that of the infantry to one hundred single-battalion regiments of foot; all the 2nd and 3rd battalions were mustered out, and the officers placed on half-pay; the auxiliary services were all broken up, the Militia and Yeomanry disembodied, and the Volunteers disbanded. When the war with Russia broke out forty years later, in 1854, the British Army consisted of a collection of splendid squadrons and battalions, without any organisation or equipment for the field. The experience of the Crimea and of the Indian Mutiny produced some improvement; but our army still continued to be organised and administered on the lines of the old Royal Standing Armies of the seventeenth and eighteenth centuries. The victories of the Prussian arms over the Austrians and French produced the same effect on public opinion in Great Britain as in the other countries of Europe, and convinced English Statesmen of the necessity of reforming our military system. In 1870 Mr. Cardwell, Minister for War in Mr. Gladstone's Cabinet, undertook the task of setting our military house in order: the purchase of commissions and of steps of promotion was abolished, and the exclusive privileges of the Guards were abrogated; a shorter period of service in the ranks was introduced; and an Army Reserve was established. Since that time the reforms of Lord Cardwell have been further reformed, and many successive changes have been introduced into the system of army organisation and administration, without attaining any final satisfactory result.

The problem of the military requirements of an empire, which embraces possessions in every quarter and in every climate of the globe, is a very different one, and a far more difficult one than that which confronts Continental statesmen and soldiers; they have successfully solved the problem of National defence, but ours of Imperial defence still awaits a definite solution. It is to be devoutly hoped that the new scheme elaborated in our War Office, and about to be put into execution, may provide us with a permanent and effective system of army organisation.

STUDIES IN APPLIED TACTICS.

CAVALRY IN BATTLE (15TH AND 16TH AUGUST, 1870).

By P. LEHAUTCOURT.

Translated by permission from *Le Journal des Sciences Militaires,*

By Major E. MAKINS, D.S.O., 1st Royal Dragoons.

Continued from June JOURNAL, p. 835.

X.

THE DEATH RIDE.

HOWEVER, General von Buddenbrock had taken advantage of the short interval, resulting from the preceding charges, to get his battalions in order. But his left was in a more and more critical situation, after fighting for several hours.

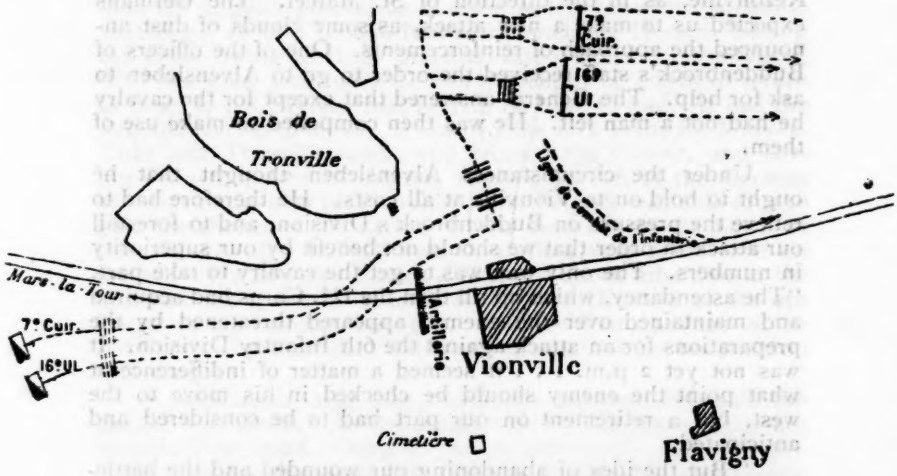
It was at this crisis that there appeared to the north of St. Marcel considerable masses of troops, which appeared to move against the left flank of the Prussian line, and whose artillery already enfiladed the ravine, which runs towards Vionville on the east of the Tronville copses.

In order to prepare to meet this dangerous situation, Alvensleben had at his disposal only the half Brigade under Colonel Lehmann which had outstripped the remainder of the X. Corps. The approach of the 20th Infantry Division determined him to engage these three battalions in the copses. Henceforth there was only cavalry in reserve.

Up till then he had been able, from his audacity, to entirely deceive the commanders of our forces. He had already drawn against himself four army corps, and a fifth was following. Not only was our march to the Meuse checked, but the Germans held our principal line of retreat. The commandant of the III. Corps was able to congratulate himself on these results. There was no reason why he should push on further. On the contrary, the point was that he should not get crushed by the greater numbers of an adversary who was up till then unconscious of his weakness. It was still but little after midday, and this August day had not nearly ended. There was no more infantry, not a gun in reserve. The first reinforcement, the 20th Division,

which could come up was still far away. Therefore Alvensleben was again led to make use of his cavalry.

He had quitted his post of observation to the west of Vionville, in order to watch the first move of Colonel Lehmann, and find out the position of the 5th Cavalry Division. For the second time he met Rheinbaben. At this moment the General, with Barby's and Bredow's Brigades, advanced to the north of Tronville copses, going round them by the west, "in order to cover the left flank better." A manœuvre which would have been perfectly reasonable if the presence of the cavalry had not been indispensable between Vionville and Gorse ravine, in order to act as a reserve for the other troops, which were soon to need it.



Alvensleben gave no order to this effect. He did not think he ought to countermand this move, although he was the highest in rank of the general officers present on the battlefield. Rheinbaben was, in fact, attached to the X. Corps, and Alvensleben, according to his own ideas, had not at the time any reason for interfering with the former. That at least is what is written in the *Einzelschriften* taken from the Memoirs of the General. Perhaps it is possible to find these scruples out of place. In Alvensleben's situation his duty was to leave no stone unturned to counteract his possible destruction.

As it was, he restricted himself to expressing the wish, that at least a Brigade should remain at his disposal. Barby's Brigade was at first told off to him; then Rheinbaben altered his mind. It was Bredow who had to stay at Tronville, to immortalise himself shortly after by his Todtenritt (death-ride), somewhat in spite of himself. Barby advanced again to the west of the Tronville copses in order to cover the left of the Prussian infantry (about 1 p.m.).

Barby's Brigade had been on the move for some time when the staff of the III. Corps noticed that Bredow was preparing to follow it. Bredow said that he had received the order from Rheinbaben. He was at once warned that Rheinbaben had expressly left a part of his division at the disposal of Alvensleben. Bredow therefore remained near Tronville.

After this incident Alvensleben returned to the west of Vionville. At this time Buddenbrock's Division was entirely reduced to the defensive, and its commander had not a single infantry soldier at his disposal. The fire of the German skirmishers was weakening by degrees, and the danger appeared acute. The fire of the French artillery became by degrees unbearable, just as much from between the Roman road and Rezonville, as in the direction of St. Marcel. The Germans expected us to make a new attack, as some clouds of dust announced the approach of reinforcements. One of the officers of Buddenbrock's staff received the order to go to Alvensleben to ask for help. The General answered that except for the cavalry he had not a man left. He was then compelled to make use of them.

Under the circumstances Alvensleben thought that he ought to hold on to Vionville at all costs. He therefore had to relieve the pressure on Buddenbrock's Division, and to forestall our attack in order that we should not benefit by our superiority in numbers. The only way was to get the cavalry to take part. "The ascendancy, which up till then the III. Corps had acquired and maintained over the enemy, appeared threatened by the preparations for an attack against the 6th Infantry Division. It was not yet 2 p.m. . . . it seemed a matter of indifference at what point the enemy should be checked in his move to the west, but a retirement on our part had to be considered and anticipated.

"But the idea of abandoning our wounded and the battlefield to the enemy was unbearable.

"In an engagement of this sort the art of manœuvring ceases and the chances of combat give the decision. To renounce all moral superiority would have meant endangering the successful issue of the day to such an extent that all other risks would have paled before it.

"I decided to anticipate the enemy by a fresh cavalry attack: the 6th Infantry Division was spent in consequence of its losses and fatigue.

"I then ordered Colonel von Voigts-Rhetz, Chief Staff Officer of the III. Corps, to go to Bredow's Brigade." Hearing this order Colonel von Drigalski, of the 2nd Dragoons, turned to Alvensleben with a mute appeal in his eyes. The General understood the look full well, but, nevertheless, kept his regiment near him, as he had to keep a reserve in case of unforeseen emergencies.

In the absence of Rheinbaben, the Chief of the Staff of the III. Corps sent on straight to Bredow the order to attack our

batteries by the Roman road. But he also added, "The Brigade, leaving on its right the Prussian artillery, will advance alongside the wood against the right of the enemy." He also indicated the best route to follow, and when Bredow objected to it, saying, "Surely we must also attack the copses?" he answered that the Prussian Infantry occupied them already.

This assurance was not sufficient for Bredow, for he detached for the Tronville copses two out of his eight squadrons. an inopportune thing to do, as it weakened him at the most critical moment without the least advantage. What was the use of losing the services of these two squadrons by sending them into the wood?

Another thing still less comprehensible was that Bredow took the singular precaution of drawing lots for which squadron should go, an idea unique in history since the Horatii. Noting the delay owing to these preparations, Colonel Voigts-Rhetz, who had gone some distance away, thought he ought to return in order to tell Bredow that he had no time to lose. At last the Brigade started to move. It reached the fork made by Mars-la-Tour and Tronville roads, and crossed the former, and having formed in line of masses, reached the left of the German batteries to the west of Vionville. The Brigade was able thus to gain the shelter of the ravine, which descends to the north of this village, after having been in sight a very short time on the hill 287; and the *Revue d'Histoire* draws attention to the fact that the historical records of Tixier's Division of the 6th Corps do not mention seeing it. But the Commandant of the Artillery of La Font de Villiers saw it and took up his position accordingly.

It was about 2.30 p.m., and our inaction rendered the danger less acute. At the moment when Bredow crossed the Mars-la-Tour road, General von Buddenbrock shouted out: "Ah, I believe that we can do without them," and he told Lieutenant von Kalckreuth to go and tell Bredow that if he was charging on his, Buddenbrock's, invitation, he need not do so. Kalckreuth galloped off and passed on this communication. But Bredow answered at once: "I have got the order to charge from General von Rheinbaben (?); I'm off."

In the ravine to the north of Vionville he was entirely hidden from view of our troops, even of those to the west of the wood of St. Marcel. After having gone troops left wheel, he went along in this fresh direction, descending in the same formation into the ravine. He went about 1,500 paces to the north so that his leading Regiment, the 7th Cuirassiers, arrived abreast of the last spur, which slopes gently down from the height 312, following a course almost parallel to the Roman road. Bredow then formed line, sounding "Troops right wheel," and then "Gallop." At this moment the 16th Uhlans had not yet finished deploying, so that they started to gallop some moments after the 7th Cuirassiers, and thus lost 100 to 150 paces distance.

The six Prussian squadrons ascended the slopes, taking up a direction rather inclined to the south-east. They saw absolutely nothing of their objective, and were all the time under a hail of bullets, which were mostly too high and did them little harm. Major von Dollen, who commanded the 16th Uhlans, shouted out: "After all, I don't see the enemy at all, whom we ought to attack." All at once there jumped up from the ground, a short way off, thick lines of infantry, who prepared to fire. The Prussian troopers reached them amid volleys and rapid fire, which left them almost intact. Some neighbouring batteries fired case shot rapidly, with the same results. An eye-witness writes that he had the impression that it was a charge in time of peace. The same officer states that when the Prussian troopers went through the lines of our infantry, the latter threw down their arms and fled wholesale. Some men were struck by the Uhlans, who finally became ashamed to kill their unarmed adversaries. Kalckreuth himself shouted out, "Let them live, they won't do us any more harm."

Bredow's squadrons had in front of them three companies of the 9th Battalion of Chasseurs (3rd, 4th, 6th), detached on the height 312 in support of the artillery, and those of the 75th Regiment deployed to the south of the Roman road, and also the batteries of the Divisions of Tixier and La Font de Villiers between the Roman road and the Mars-la-Tour.

The 93rd had already retreated behind the crest occupied by this artillery, whose front remained thus entirely uncovered. There remained to the left of the batteries only some companies of the 9th Chasseurs. They also were masked by the ground in the direction of the enemy. The artillery of the Divisions of Tixier and La Font de Villiers had suffered considerably, although their own firing had taken great effect, a fact which was recognised by our opponents. The preparatory manœuvres of Bredow had not escaped the notice of Lieutenant-Colonel Jamet, who commanded the above batteries. Fearing the cavalry charge on the angle of the St. Marcel wood, on which our line rested, he sent forward rapidly the 6th Battery of the 14th Regiment, while the two others (5th, 7th of the 14th) continued their fire, "directing it to the right."

The batteries of Tixier's Division, mainly the 5th and 8th of the 8th Regiment, suffered enormously; Lieutenant-Colonel Montluisant sent to ask for reinforcements. The squadron leader, Vignotti, sent a message to General Forton, who consented to detach his two Horse Artillery Batteries (7th and 8th of the 20th Regiment), which had remained out of action since the surprise of the morning. Vignotti led them at the trot in front of the position occupied by one of his own batteries (5th of the 8th Regiment) in order to allow it to retire. It was at this moment that the charge occurred.

The first of the batteries of General Forton (7th of the 20th) had just taken up its position when Bredow's horsemen were in the middle of it, in spite of a round of case which had thrown their first ranks into great disorder. Uhlans and Cuirassiers

sabred the *personnel*. In a moment 4 officers and 30 men were *hors de combat*. The succeeding battery (8th of the 20th) had only been able to bring three guns into action when the charge reached it; the other three fled to Rezonville.

The nearest battery, the 5th of the 8th Regiment, masked by the 7th of the 20th, was not able to fire. It also had been ridden through by the Prussian troopers, who had done it but little harm. At the same time this battery, having 26 men and 36 horses *hors de combat*, retreated to Gravelotte to replace its casualties from the reserve. The enemy then passed under the murderous fire of three supporting companies (3rd, 4th, 6th of the 9th Battalion of Chasseurs), who were, however, unable to stop their onward movement. Another battery of the Division of La Font de Villiers (6th of the 14th) had hardly advanced in front of the left of the former, when it also was ridden through, and lost heavily. The 5th of the 14th Regiment did not await the charge, but limbered up and retired rapidly to the east with the Prussian troopers close on its heels.

The right of our artillery, which had been less severely affected, was able, however, to make but little impression on Bredow's troopers. The 12th Battery of the 8th Regiment restricted itself to making a change of front in order to get its back on the Pierrot wood to the south of the Roman road. In the same way the 7th of the 14th, which was on the right, does not seem to have fired on the charge. The 7th of the 8th immediately next the Roman road, took up such a position as enabled it to fire towards the rear on the troopers who had passed its front.

The main body of Bredow's Brigade continued on its career. It arrived thus in front of the 93rd, who were reformed behind the artillery after its repulse. The precipitate retreat of some of our batteries broke the ranks to some extent in the centre of the regiment, and the charge passed through this gap. The escort to the colours was dispersed by our artillery and by the Prussian troopers; the officer carrying the colours was knocked down, and the colour staff, broken just below the eagle by a projectile, fell to the ground. The confusion was immense; the right of the regiment fled to the Roman road. The remainder rallied by Colonel Ganzin, held their ground on the crest which runs from the point 312 to Rezonville.

Bredow's troopers had not yet finished their death-ride. Having passed through the 93rd, they went down into the depression to the north-east of Rezonville. But our cavalry began to move in their turn.

Forton's Division was then in position with its back to the Roman road; on the right Murat's Brigade (9th and 1st Dragoons) were in line; to the left Gramont's Brigade (7th and 10th Cuirassiers) were in two lines 60 metres from each other. The Divisional General had seen the Prussian troopers pass over the crest to the west and descend the slopes to the north of Rezonville. They were completely disorganised by a gallop of 3,000 paces; they looked like Algerian cavalry charging. In

this way they arrived level with Forton's right, exposing their flank at a distance of 400 to 500 metres. The General at once launched Murat's Brigade, which charged straight to the front. Its charge had at first the effect of cutting the Prussians in two portions. The leading portion, pursued by the dragoons, went for Valabrègue's Division, which was on Forton's left.

Seeing our squadrons moving, Bredow sounded the rally, but he was too late. Blown by this long gallop, their ranks thinned by the enemy's bullets, and without any reserve, Uhlans and Cuirassiers made only a feeble resistance, and fell in crowds before the swords of our troopers. The Dragoon Brigade of the 2nd Corps, 7th and 12th Regiments, charged them in front; a little later the 5th Regiment of Chasseurs, which was to the north-west of Rezonville, took them in flank. Thus attacked on three sides, the leading portion of the Prussian charge was nearly annihilated. The rear, composed chiefly of Cuirassiers, whirled about in confusion for some moments and finally tried to retreat at the gallop, passing thus in front of Gramont's Brigade, which was still doing nothing in the expectation of another charge. The 7th Cuirassiers brandished their swords and Forton just gave them the order, "Forward, the 7th." Immediately a loud hurrah was heard; the 7th Cuirassiers, followed by a squadron (the 1st) of the 10th, went like a whirlwind on to the flank of the enemy, who, already surprised, and now very weakened, made a feeble defence and then fled. Unfortunately, our squadrons did not push home their pursuit, but the remainder of Bredow's Brigade, none the less, passed under fire of our infantry, who had rallied, and smothered them with a hail of bullets, and inflicted crushing losses on them.

The few that remained of Bredow's Brigade reassembled behind Flavigny. Each of the two regiments were only able at first to organise one squadron out of the three which had taken part in the charge. This charge had cost them about half of their total numbers of troopers and horses. Out of about 800 troopers these six squadrons lost: The 7th Cuirassiers, 7 officers, 189 men, 209 horses; the 16th Uhlans, 9 officers, 174 men, 200 horses. It is a noticeable fact that the cuirass of the Cuirassiers did not prevent them having greater losses than those of the Uhlans, although apparently their numbers were about the same.

General von Redern had sent the 11th Hussars, who were beyond Vionville and Flavigny, to rescue Bredow's squadrons, but in the absence of any serious pursuit this Regiment did not take any action. Forton's Division had already taken up its position with its back to the Roman road. That of General Valabrègue returned to the north-east of Rezonville. The other troops in position between the Roman road and the Mars-la-Tour road, had, without exception undergone a severe shock both material and moral. The twelve batteries present left their position; two only (7th and 12th of the 8th Regiment), after having retreated as far as the Roman road, opened fire again

almost immediately. As to the ten others, they retired, in order to fill up with ammunition, and took no further part in the fight. The losses of most of them did not justify such inaction.

Our infantry also was very severely shaken. The 75th and two-thirds of the 93rd rallied along the Roman road; the other third of the 93rd and two battalions of the 70th (1st and 2nd), not having come within the scope of the charge, alone remained in position in the interval between the Roman road and the high road.

This memorable feat of arms admits of numerous and serious lessons. It shows, in the first place, that a cavalry charge is not at all impossible in the face of infantry already weakened, it is true, by a fight of some duration, but with a plentiful supply of ammunition, and with its *moral* almost unaffected, and supported near at hand by a strong proportion of artillery (12 batteries on a front of about 1,500 metres).

We have already remarked that the losses of the three squadrons of Cuirassiers were greater than those of the three squadrons of Uhlans whose total numbers were probably about equal. Apparently one lesson can certainly be learnt. We kept the defensive armour of the Cuirassiers from a childish respect to tradition. The cuirass is of no real use; on the contrary its weight on the man and the horse greatly lessens their mobility in the field. We are at present the only nation in Europe to retain the cuirass. Our future enemies leave it in store when they go into the field. How long shall we wait before we abolish this cumbersome and ancient article of dress?

Without doubt the losses of Bredow's Brigade were very considerable, but the results obtained were none the less so; two lines of infantry, a mass of artillery had been broken up, after a charge of over more than 3,000 metres, which had only stopped on encountering fresh cavalry in very superior numbers. Such were the effects which will justify for ever the celebrity of the death-ride. How can we explain the success when, just before, Redern's Brigade and the 6th Cavalry Division had had no real effect? It is that Bredow, advised by Colonel von Voigts-Rhetz, made skilful use of the ground for his approach, and when once in front of his objective, charged with a vigour and a dash, which could not have been surpassed. In addition, the moment of attack was well chosen after the retreat of our infantry, and when our artillery had been seriously affected, and had begun to make various changes of position, which were absolutely inopportune.

The results, both material and moral, were considerable. The retreat of ten batteries, and the confusion in the ranks of our infantry, had weakened the centre of the French line to an enormous degree. The III. Corps was disengaged at a most critical moment. Marshal Bazaine and his Generals, Canrobert in particular, were of necessity confirmed in their passive attitude, and the result of the day's fighting was practically a foregone conclusion.

At the same time, the importance of these results already so noticeable, should not be exaggerated. According to the Prussian Staff, the Totdenritt checked the offensive movement which the 6th Corps had commenced, and Marshal Bazaine himself, fearing a new attack against his left, interfered to stop his colleague from continuing it. But no document authorises such an assertion, and everything goes to indicate on the contrary that neither Canrobert nor Bazaine had at any moment during the day any fixed idea of taking the offensive.

It must be added that if Bredow's Brigade had been supported by a reserve, it would have obtained a still more remarkable success. What would have happened, for example, if Redern's Brigade or the 6th Division had been launched in its tracks? Would it not have been most serious for us, and would not this mass of cavalry have overthrown the Divisions of Forton and Valabrègue, who had been already affected by the surprise of the morning? The confusion in the centre of our lines would have been irretrievable.

As it turned out, there was one distinct result from this charge of August 16th, viz., that no other French attack came from Rezonville. Henceforth from the western extremity of the St. Marcel wood to the Western boundary of the Bois des Ognons, we were going to preserve a purely passive attitude. Buddenbrock's Division was not going to be pressed, exhausted though it was. Two of his battalions had profited by the charge in order to climb the slopes, south of point 312, and to show a front towards the Roman road. They were able to hold their ground there, even when Buddenbrock's left was driven back some moments after.

Besides, the pause, which followed in the action, had permitted an infantry regiment (the 64th), who up till then had been sorely tried, to rally behind Vionville. It formed a reserve which the III. Corps had wanted. The sequence of events showed Alvensleben that he would soon have need of it to the north (about 3 p.m.).

Meanwhile the fatigue of the troops on each side was extreme, and the fight became chiefly an artillery duel more or less briskly conducted. But from the north and from the south arrived troops who were still fresh, and who were going to infuse new life into the fight.

(To be continued.)

ARTILLERY DEVELOPMENT IN THE UNITED STATES NAVY.

Battle Practice in 1907.

(Extract from an Article in the *Marine-Rundschau* for May, 1908.)

Communicated by the Director of Naval Intelligence.

FIRING took place in Cape Cod Bay during September and October, 1907, at long ranges, against a target 9 m. (29.5 feet) high and 18 m. (59 feet) wide, which was anchored. The ships steamed past at a speed of 10 knots at fighting ranges which varied according to the class and age of the vessel.

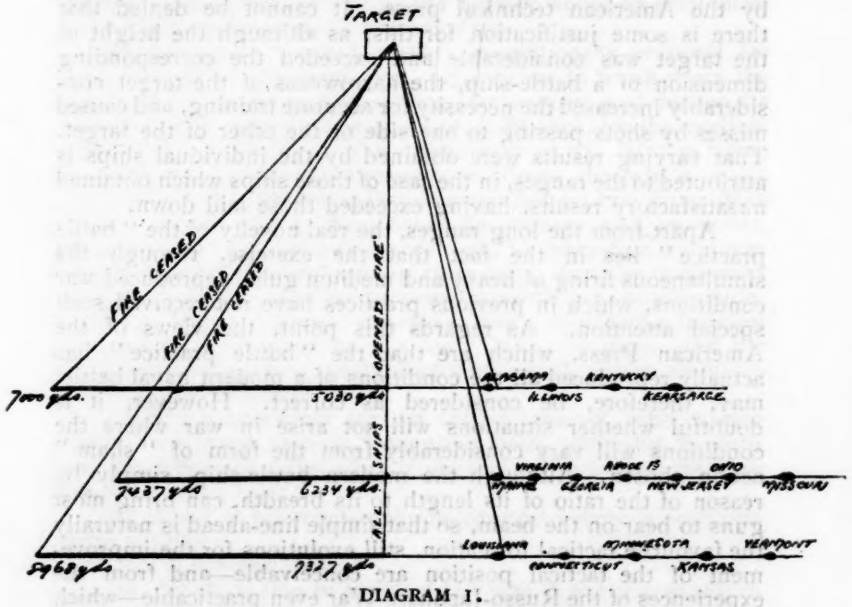


DIAGRAM 1.

Marking buoys were not placed, so that the distances had to be judged. Fire was opened when the target was on the beam, and lasted for eight minutes. It was, therefore, a case of firing at increasing ranges, the practice being based on the idea of the "running fight." The ranges for the individual ships are shown in Diagram 1. In order to prevent any misconception

it may be mentioned that each ship made the run and fired separately.

The following average hits per cent. were obtained:—

30.5 c.m. (12-inch) and 33 c.m. (13-inch) guns ...	30.7 per cent.
17.8 c.m. (7-inch) guns	27 ,,
12.7 c.m. (5-inch), 15.2 c.m. (6-inch), and 17.8 c.m. (7-inch) guns	16 ,,

In the American Navy, from these results, the conclusion has been drawn that the heavy gun is the more suitable for firing at long ranges, not on account of the effect on the target, but on account of the greater "danger" space. It appears that the same view is held in England, as, according to the statements in the Memorandum on the English Shipbuilding Programme, 1905-06, it has been the more favourable chance of hitting rather than the greater bursting or piercing effects, which, with the acceptance of the probability of actions being fought at long ranges in the future, has banished medium guns from the *Dreadnought* type in favour of a one-calibre heavy armament.

The results, as regards hits obtained, are generally praised by the American technical press. It cannot be denied that there is some justification for this, as although the height of the target was considerable and exceeded the corresponding dimension of a battle-ship, the narrowness of the target considerably increased the necessity for accurate training, and caused misses by shots passing to one side or the other of the target. That varying results were obtained by the individual ships is attributed to the ranges, in the case of those ships which obtained unsatisfactory results, having exceeded those laid down.

Apart from the long ranges, the real novelty of the "battle practice" lies in the fact that the exercise, through the simultaneous firing of heavy and medium guns, reproduced war conditions, which in previous practices have not received such special attention. As regards this point, the views of the American Press, which are that the "battle practice" has actually reproduced all the conditions of a modern naval battle, may, therefore, be considered as correct. However, it is doubtful whether situations will not arise in war where the conditions will vary considerably from the form of "sham" action chosen. Although the modern battle-ship, simply by reason of the ratio of its length to its breadth, can bring most guns to bear on the beam, so that simple line-ahead is naturally the favourite tactical formation, still evolutions for the improvement of the tactical position are conceivable—and from the experiences of the Russo-Japanese War even practicable—which will, perhaps, produce more difficult firing conditions than the "battle practice." It has, apparently, not been possible to wholly get rid of their "record target practice" scheme, with the advantages of which officers and men are too deeply inoculated. It is, however, to be taken for granted that further changes will take place; the first indications have already appeared in the professional papers. Commander Quimby, in

the *Proceedings of the United States Naval Institute,* in an article entitled "Systematic Preparations for Battle," has proposed that targets (pontoons) for towing be constructed, so that moving (towed) targets can be fired at. Quimby demands, if his proposal is realised, that a solemn oath of secrecy regarding the results of the firing be obtained from each and every witness. This demand is diametrically opposed to previous custom, the publication of all results being considered the best method of interesting the masses of the nation in gunnery, the most important of all the branches of the Service, in order indirectly to create an incentive for the crews of the ships, especially the gun crews. What has induced the American officer named to propose such a sharp reversal of procedure can only be conjectured. He considers that the results must be kept secret, because in the future firing practices will approximate as closely as possible to war conditions, and the publication of the results would give a definite basis for estimating what the fleet is capable of. Or, in other words, the exercises will completely lose their sporting character, and will become of so much value for war that the communication of information concerning them to anyone outside the Service would be prejudicial to the military interests of the country.

Quimby puts forward another revolutionary proposal for the judgment of public opinion. He wishes to break down the principle of only firing with service ammunition, and desires the introduction of tube cannon, 4.7 c.m. (1.85-inch) for the medium guns, and 7.6 c.m. (3-inch) for the heavy guns. If it is borne in mind that, under the present conditions, the whole year's ammunition allowance of a ship is expended on two firing days only, one in the spring, the other in the autumn, and, moreover, that the training of the gun-layers could be carried on by means of aiming apparatus and aiming rifles only, then the conclusion can here be drawn that the proposal is worthy of consideration, as firing, like all physical exercises, needs continuous training in order that efficiency be not lost. Wear of guns and the great expense, however, prohibits training with service ammunition being continuous.

Quimby's proposals for the introduction of tube cannon acquire additional interest from their being extended to show how this American naval officer considers such gunnery training should be carried out.

According to his scheme, the following training is proposed as the normal:—

a. Anchored target;
b. Run of ship at angle of 60° with direct course and at known speed of 12 knots;
c. Opening of fire at not less than 2,700 m. (2,953 yards);
d. No marking buoys.

Before we go on to the description of the firing procedure itself, we must say a few words concerning the fire-control system, in order to make the following clear.

The fire-control position is, corresponding with the English arrangement, on the foremast. The *personnel* belonging to the control detachment are stationed in a crow's nest attached to the topmast and in the fighting top. In the crow's nest are the spotters, in the top the distance judgers, the order-transmitters and the gunnery officer. The orders are first transmitted to a central exchange, which is situated under the armoured deck. We are not able to form a definite opinion as to whether communication is effected by means of telephones, mechanically-worked indicators or voice-pipes, or visually by means of dials. In the central exchange there is an extensive telephone installation, which is in connection with all the gun positions. Calls appear to be indicated by lamp signals, that is, optically. The reason why such a high position is chosen for the fire-control *personnel* is to be sought in the system, which rests on the estimation of the distance a shot falls short or over the target. It is obvious that for the effective determining of this distance by the spotters, the highest possible position is necessary. Of the fire-control detachment, which, of course, must be sheltered as far as possible, the spotters alone have to be in a lofty, unprotected position. They are selected from officers and specially trained intelligent men. Spotting is of two kinds, horizontal and vertical; by the former the distance which a shot falls from the target is directly estimated, whilst with the latter the vertical angle of the splash from the lower edge of the target is estimated in order to calculate the distance at which the shot falls. The former method is generally preferred. Judging distances, at the ranges at which firing is now carried out, namely, up to 8,000 m. (8,750 yards), and perhaps even beyond, is undoubtedly a very difficult matter. Estimating shots falling in front of the target, *i.e.*, shorts, is, of course, easier than estimating shots falling beyond it. It is possible that the spotter, in the course of his work, adopts certain standard values.

The details of Quimby's scheme of training may now be given:—

The first distance is determined by the range-finder. The ranging is carried out by a gun of the heavy artillery. The latter, and not the medium artillery, is probably selected because the more reliable results are generally expected from the heavy guns, on account of the flatter trajectory and the smaller influence of weather conditions. The amount of the alteration of range is calculated beforehand for a fixed period of time with the given course and speed. From this, it is evident that the firing carried out is "interval firing." The length of the interval is regulated according to the rapidity of fire of the guns. For the heavy artillery it is, therefore, fixed at 45 seconds. In his training scheme, Quimby supposes the first shot to be estimated as 500 yards short. After 45 seconds the second shot falls, the range ordered for it having been increased by 500 yards, less the reduction of the distance during the firing

interval. It again falls short, but close to the water-line of the target; the range must now be changed by adding only about half the danger space and subtracting the reduction of the distance during the firing interval. The next shot must then be a hit, and, according to Quimby, after the second shot the gun-range for the battery can be considered as determined, so that with the third shot fire by salvos can be commenced from both the heavy and medium artillery. The interval of 45 seconds is maintained by the heavy artillery during the salvo firing, whilst, by utilising their greater rapidity of fire, the medium artillery fire every 12 seconds. We have not, therefore, to consider here irregular rapid fire, but regular salvo firing, which facilitates observation on account of the clearly defined form of the splashes which rise simultaneously at regular intervals. By suitable alterations in the tangent-scale, Quimby then apparently proposes the battery should be kept on the target. It is not likely that the medium and heavy guns, on account of the different firing intervals, receive separate tangent-scale instructions, as the control of the whole of the artillery is in one hand. The following three points are characteristic of the proposed procedure:—

1. Ranging by single shots from the heavy artillery.
2. The strictly observed firing intervals.
3. The expressed endeavour to proceed to salvo firing as quickly as possible.

It is noteworthy in the procedure suggested by Quimby that there is no ranging by the medium guns. It has previously always been emphasised in articles in the American and English Press, that one cannot directly transfer to the medium artillery gun-ranges obtained by the heavy artillery, on account of the different ballistics; but that, on the contrary, a separate, though shortened, ranging is, in all cases, necessary for them. Quimby proposes to get over this difficulty by a so-called calibration; that is, a comparative firing of the individual calibres to fix the varying factors, which are to be embodied in tables. The outsider naturally cannot decide whether these proposals are practicable. The motive of the proposal for calibration is to be sought in the endeavour to arrive at the highest possible intensity of fire in the shortest time.

Commander Quimby is so enthusiastic in his appreciation of calibration that he desires to extend its employment to fleets; within a squadron comparative firings should be carried out in order to fix tables for the separate calibres from ship to ship. The object of the proposal is apparently that in a fleet action the ranging can be carried out by the flag-ship, and the remaining ships, which will be kept informed of the ranges by signal, can effectively open fire at a given time in their turn.

As we have seen above, Quimby proposes to calculate the change of distance in the interval of time from the actual fighting position.

Commander Niblack, another American naval officer, distinguished for his literary activity, has recently made public a proposal for placing the hypothetical calculation of the alteration in the distance on a real basis. He wishes to see the navigating officer brought to the assistance of the gunnery officer in the following manner:—Before the opening of fire the navigating officer is to take the bearings of the leading and the last ship of the hostile line, whilst the gunnery officer simultaneously decides the distances at which the two ships are by means of his range-finder. The results will be laid down on squared paper, and after a certain time, the procedure will be repeated. In this way is obtained, graphically represented, the alteration in the distance and, simultaneously, information concerning the course and speed of the enemy, two results which personal observation, without mechanical assistance, can scarcely

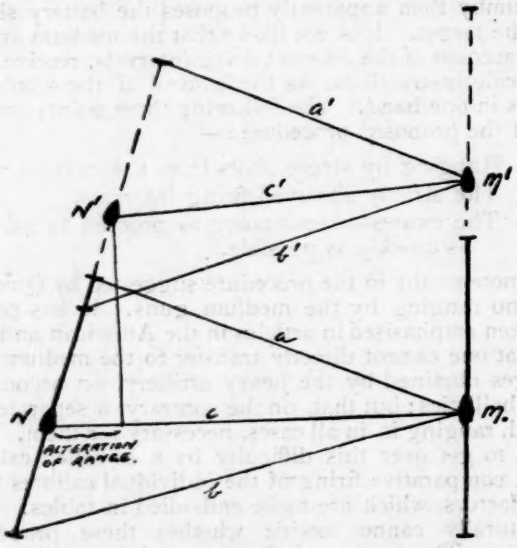


DIAGRAM 2.

arrive at. The method proposed by Niblack is illustrated in Diagram 2. Although it is unquestionably to be preferred to a rough estimate of the alteration in the distance, based on more or less reliable data, this method must also be regarded as imperfect. The course, formation and speed of the opposing fleets are regarded as constant. If these change, then the method is inaccurate.

A method, universally applicable, for solving this, the most difficult of all the problems which the long-range action presents, judging the alteration in the distance, Commander Niblack, with this proposal, has, in any case, not found, interesting as it is in itself, and capable of being of great service under certain fixed conditions.

PACK ARTILLERY AND THE CLOSE SUPPORT OF THE INFANTRY ATTACK.

By Major K. K. KNAPP, R.G.A.

WHETHER the experiment of making Territorial Mountain Artillery proves a success or not, the order for the formation of three mountain batteries in the Highland Division of the Territorial Army is, at all events, to be welcomed, as drawing attention to the want of this mobile form of artillery in the field army, and it gives rise to the hope that the necessity of having some batteries of Regular pack artillery for use with our so-called striking force will be recognised before long.

It is, perhaps, unfortunate that convenience of private transport decided a choice of the Highlands for the experiment, as it tends to strengthen the erroneous idea that pack artillery is only useful for mountain warfare, whereas it is as the immediate auxiliary of attacking infantry that pack artillery will most often prove useful against a civilised enemy.

There is no greater unlikelihood than that the Territorial Army will ever be required to fight in mountainous districts, or in country the hilly nature of which precludes the use of wheeled artillery; but if ever the National Army is called upon to defend our shores against an invader, it is probable that the fighting will take place in the close or open country, which is to be found near the East and South Coasts of England. The real utility of pack artillery would have been better appreciated if the experiment could have been tried in some county, where the local conditions assimilate more nearly to those under which our army for home defence may one day have to fight.

Moreover, much of our English country is very enclosed and thus peculiarly suited to the employment of pack artillery. Undulating country, which is divided by hedgerows into numerous small enclosures and much intersected by streams or interspersed with patches of woodland, offers little opportunity for the tactical employment of wheeled artillery on account of the contracted nature of the ranges, and the difficulty which vehicles must experience in moving over enclosed ground, unless convenient roads exist. There is no question that troops, operating in such country without pack artillery, might find themselves seriously handicapped, especially if the enemy were provided with mobile batteries of this nature; and a force of

artillery, which is maintained for home defence, should therefore include a considerable proportion of mountain batteries.

It is not, however, to the territorial mountain artillery that I would draw attention, but to the urgent necessity of providing the field army at home with some Regular batteries of pack artillery, without which it will often not be possible to give our infantry the close and effective artillery support, which attacking troops require under the conditions that now prevail in civilised warfare.

The Russo-Japanese War furnishes us with many striking instances of the risk of failure and possible disaster, which attacking infantry must run when unsupported by artillery fire, and the useful help which a few low-power mountain guns were able to afford the Japanese infantry on several occasions, when pushed up in close proximity to the firing line, emphasises the lesson that close and effective support by artillery fire is essential to infantry in the attack.

It has been argued that the want of co-operation between the Japanese field artillery and their infantry was primarily due to the fact, that the batteries were indifferently horsed and so not sufficiently mobile to move quickly under fire to the advanced positions, where their support might have been effective. But though it is undoubtedly true that the Japanese field artillery were greatly handicapped by a want of mobility, it is not to this that their failure to assist the infantry can be chiefly attributed. The real reason must be looked for in the change of conditions brought about by recent development in artillery *matériel*.

It was indisputably proved in Manchuria, that changes of position to closer ranges by daylight are now practically impossible for wheeled artillery in the face of Q.F. guns, because the risk of destruction when limbering up, coming into action, or moving under fire, is too great. If, therefore, we neglect now to make the artillery of the field army capable of affording close support to the infantry with other and surer means than wheeled artillery, we have every reason to fear that on the first occasion, when our troops find themselves opposed to an enemy who possesses an effective force of artillery, our infantry may look in vain for support at a critical moment. For while it is certain that our horse and field batteries will not hesitate at any sacrifice, which the endeavour to give this much-needed assistance may entail, it is more than probable that every such attempt will only end in our field artillery suffering heavy losses without any useful result.

The evidence seems conclusive that pack batteries are the only nature of artillery, which can, during an action and by daylight, change position or advance to the support of the infantry under fire. The reasons for this are generally known, but it may be as well to repeat them, as follows :—

Batteries of pack animals can, on account of their elasticity, work their way gradually forward and in extended order, and so have a greater chance of getting across a fire-swept zone than

the most mobile form of wheeled artillery, each vehicle of which offers a large target and runs the risk of destruction, if an animal is shot. An animal shot does not bring a gun, carried on pack animals, to a standstill, and if a casualty cannot be replaced by a spare animal, it will generally be possible to bring on by hand any portion of the equipment which is left behind by some mischance.

Pack artillery is also the most suitable to accompany infantry, because pack animals can go practically anywhere that an infantry soldier can go without using his hands. Hills, woods, broken or enclosed country, which would be impassable to wheeled vehicles, unless roads exist or passages are prepared beforehand, present little difficulty to pack animals, and as the latter will often be able to get cover from hedges, undulations of ground, crops, scrub, etc., which would not conceal the movement of wheeled artillery, batteries of pack animals may often be able to reach decisive ranges without detection.

It is not intended to imply that wheeled artillery can never give effective support under modern conditions, for in theatres of war, where the ground offers little obstacle to the free movement of highly mobile wheeled artillery, and ample cover exists to screen its advance, batteries of horse artillery, suitably equipped, might accompany the attacking infantry and give them timely and effective support. But there is no doubt that conditions will more often favour the use of a nature of artillery, which is rarely hampered by difficulties of ground and not easily stopped by fire, and the addition of some batteries of pack artillery to the Regular Army at home is therefore necessary to ensure the infantry close and effective support under all circumstances.

This is a matter which very closely affects the Army at large, for it is only by the success of the infantry attack that battles can be won, and it is therefore to the interest of all arms of the Service to see, that the artillery of the field army is equipped in the manner best calculated to ensure the infantry all the support that they require. This support is threefold: first, the engaging of the enemy's artillery, and, as far as possible, the establishment of a superiority of fire by the heavy and field artillery; second, the paving of the way for the infantry attack, which will usually be carried out by the heavy artillery and such of the field batteries as are not required to keep down the enemy's artillery fire; third, the close support of the infantry attack. It is in the want of mobile batteries, which are suitable for this third purpose, that the artillery of our field army falls short of the desirable, and this is made evident by the instructions in our training manuals. For in §85 of the Field Artillery Training, the necessity for close co-operation between artillery and infantry is clearly laid down as follows:—

"As the attack progresses, it will be necessary for the artillery to co-operate closely with the infantry; such co-operation

with an infantry attack is not possible at distant ranges, unless the country is unusually open."

But the difficulty of giving infantry this close support with the artillery available for the purpose is also made clear at the end of the paragraph in the following sentences:—

"But such changes of position are attended with considerable risk, unless it is clear that the enemy's artillery have been overpowered, or that the ground to be traversed is concealed from his view. When this is not the case, the movement may have to be carried out under cover of darkness."

This does not sound very reassuring for the attacking infantry, for it is not possible to foresee with any certainty, when and where this close support will be required. It is not only the supporting fire of artillery against the enemy's infantry position, that the attacking infantry look for, but they require effective and opportune assistance in case of either general or local counter-attacks.

The time and direction of such attacks will probably come in the nature of a surprise, and if the necessary support for the attacking infantry is not forthcoming at the critical moment, owing to the conditions being adverse to any previous forward movement of horse or field batteries, the repulse of the infantry and failure of the attack is a possible, if not probable, result. How much more satisfactory for the infantry it would be, if pack artillery were available and these instructions read:—

"As the attack progresses, it will be necessary for the artillery to co-operate closely with the infantry. For this purpose batteries of pack artillery will accompany the attack and take up positions to assist the advance, wherever necessary. Making every use of cover, these batteries will gradually work their way forward with the infantry as opportunity offers, until they reach a position at decisive range, from which they can afford the infantry close and effective support in the final stages of the attack."

Apart from the actual assistance, which such close co-operation of artillery must afford by means of effective fire, the knowledge, that batteries are near at hand and support at critical moments is assured, cannot fail to give the attacking infantry greater confidence to advance, than if they know that artillery support may only be forthcoming after nightfall, unless the enemy's artillery is previously overpowered, or the ground to be traversed is concealed from view.

Nor is the employment of pack artillery confined to supporting infantry in the attack. For in the defence of woods, for turning movements in broken or hilly country, in temporary forward positions occupied by the defence, and in counter-attack, much useful purpose may be served by artillery, which is independent of roads and essentially mobile.

Batteries of pack artillery may be useful also in the passage of rivers to accompany the covering force, which is sent over the river to cover the crossing of the army. For though there

may be no suitable means immediately available for passing wheeled artillery across the river, there would be no difficulty in devising some way of transporting light equipments, which can be easily taken to pieces; and even if it were not convenient to send over the pack animals at the same time, it would always be possible to bring the batteries into action by hand, and so ensure the infantry some artillery support. Similar opportunities for the use of these batteries might occur in the disembarkation of an oversea expedition.

Enough has been said, I hope, to show that Regular pack artillery is an essential part of the field army, and there is no doubt whatever that the work which this artillery will be needed for can only be carried out by highly-trained and thoroughly efficient units. It would be a fatal mistake, therefore, to trust to hurriedly improvising these batteries, when the necessity to use them arises, and it is to be earnestly hoped that the formation of Regular pack artillery at home will be provided for at no very distant date.

THE SERVICE OF COMMUNICATION IN THE LIGHT OF THE EXPERIENCE OF THE RUSSO-JAPANESE WAR.

(Translated from the *Russki Invalid* of 22nd March, 1908.)

Communicated by the General Staff.

ON the 20th March last, two lectures were delivered on the above subject at the headquarters of the Guard Corps in St. Petersburg.

The first lecturer, Captain Andolski, of the General Staff, described the various methods of communication in war at the disposal of the company, battalion, and regimental commander. Drawing attention to the importance of this service, the lecturer quoted in illustration two striking examples from the work of the 1st Army Corps in the operations on the Sha-Ho (the Wooded Hill and the Yanshutansk Heights), and then passed on to a discussion of various aspects of the subject, and to a description of the methods adopted for the purpose in the late campaign. What is called "interior connection," *i.e.*, the knowledge by all of the object for which they are striving, is considered of primary importance, for this in itself creates a strong interior connecting link. To this end the general plan of the operation about to take place should be clearly explained by all commanders to their subordinates before deployment into battle formation. It is better to devote a little time at the commencement of the fight to this end than to pay later on by heavy loss for the omission of such precautions.

The value of this method of preliminary explanation is enhanced by the fact that it arouses the enthusiasm of the combatants, which it is only necessary to feed by "exterior communication." By this latter means, all who are taking part in the combat are presented with a continually developing picture of its progress, and so enabled to take such steps as are rendered necessary by changes in the general situation.

The lecturer then enumerated the various essential requirements which any method for the transmission of intelligence at a distance must satisfy, and discussed the relative value of different methods, in the light of the requirements of modern war. Among the different systems for the maintenance of touch and communication in the theatre of active operations, preference was accorded to the telephone, the great advantage of which lies in the rapidity with which intelligence can be transmitted, and the certainty that it reaches the person for whom it is

intended. It is only in its liability to damage that the telephone falls short of the ideal method. The telephone is well adapted for intercommunication on the defensive, but its use causes delay in the attack. Its general want of reliability under fire has necessitated the supplementing of its work by other methods of communication, among which flag-signalling is the most important. However, this method is difficult in enclosed country and in bad weather.

The experience of the war has proved that numerous and complicated systems of signalling should be avoided. The transmission of signals should be simplified, and the number of component parts in each signal should not exceed two or three, for on the strict limitation of these parts the rapidity and clearness of signalling directly depend. In addition to this, certain signals should be introduced for the rapid transmission of whole sentences. There is no ideal method of communication which is adapted to every situation, and for this reason it is satisfactory to rely on a combination of various methods. With a view to the improvement of the service of communication, and to its continuance on sound lines, the experience of the war points to the following recommendations:—

a. In each unit someone should be always specially and permanently detailed to take charge of the service of communication.

b. The commanders of smaller units should be charged with the responsibility of organising the service.

c. Touch and communication must be kept up in battle formation.

Schemes were then explained for maintaining communication, with the appliances at present in army use, in attack and defence, in the various zones of fire, and in various general situations.

In conclusion, the lecturer expressed the hope that all commanders would renounce in peace time the vicious habit of making decisions based on deductions drawn from the small part of the field of battle within their personal range of vision. Owing to the extent of the modern battlefield, higher commanders must acquire the habit of forming for themselves a picture of the fight from the reports which are sent in. Only continual practice in time of peace will enable them to remain in rear, beyond the reach of the visual impressions of the fight, and then deduce from the laconic reports which are furnished from the front, a clear idea of the course of the action and strength and object of the enemy, and to base their decisions accordingly.

The second lecturer, Staff-Captain Poyarkov, attached to the General Staff, began with an explanation of the importance of the service of communication, and then, passing to a consideration of the value of the various methods of maintaining

communication, both in the fight and on the march, attached particular importance to the detailing of officers for the purpose to neighbouring units. Attention was then drawn to the value of observing stations between forces operating separately, and it was remarked that, while at the commencement of the late campaign such stations were formed exclusively for the purpose of observing the enemy, a short time before the conclusion of peace they were also made use of in order to observe the movements of co-operating bodies of troops. Still, however excellent and satisfactory in every way the methods of maintaining communication may be, they will bear little fruit if their organiser is not thoroughly imbued with the consciousness of the importance of the service which he directs. In the Japanese Army the service of communication was well organised, and its technical appliances, the telegraph and telephone, were extensively used, hence gallopers and orderlies were seldom employed. In the Russian Army, the telephone and telegraph were monopolised by the staff, and separate units and detachments were only linked up by the telephone when halted for some length of time in one place; in action preference was given to the use of orderlies.

Russian opinion up to the time of the war held fast to the idea that man—the orderly—must be the main channel of communication in the fight, and that technical appliances can only be subsidiary. Further inter-communication was rendered difficult by the arbitrary improvisation of units. Difficult indeed was the position of the commander of the Northern Army at Mukden. Some seventy separate units, which had been withdrawn from the fighting line of all three armies, were brought together under his control, and it is evident that all their efforts were directed to repelling the attacks of the Japanese and keeping touch with Army Head-Quarters, while communication with neighbouring units was necessarily forgotten.

The lecturer concluded with the remark that under modern conditions, operations without well-established touch and communication between units, were not to be thought of. Of appliances there is an abundance; all that is required is knowledge of their use and ability to adapt them.

In the discussion which followed, Major-General Von den Brinken, of the General Staff, laid stress on the importance of the heliograph for keeping in touch with outflanking columns, and on the necessity for the establishment of communication between troops and their commanders, in cases where the latter leave the position to which it has been laid down in orders that reports shall be sent.

There were present at the lectures His Imperial Highness the Commander-in-Chief of the St. Petersburg Military District, and the Inspectors-General of Cavalry and Infantry.

NAVAL NOTES.

Home.

The following are the principal appointments which have been made :—

Captains—H. G. King-Hall, C.B., D.S.O., to "Indomitable," and as Commodore, 2nd Class, until the return from the voyage to Canada; C. F. Corbett, M.V.O., to "Blake"; The Hon. A. D. E. H. Boyle, M.V.O., to "Hibernia"; A. H. Christian to "Racer" for Command of R. N. College, Osborne.

The first-class battle-ship *Dominion*, belonging to the Channel Fleet, paid off at Chatham on the 1st ult., and recommissioned on the following day for a further term of service with the same fleet. The first-class battle-ship *Ocean* commissioned at Chatham on the 2nd ult. for service in the Mediterranean, where she takes the place of the *Implacable*, and left on the 20th ult. for her destination. The first-class battle-ship *Cornwallis*, from the Atlantic Fleet, paid off at Devonport on the 3rd ult., and recommissioned on the following day for a further term of service with the same fleet. The new first-class battle-ship *Agamemnon*, commissioned at Sheerness on the 25th ult., for service in the Nore Division of the Home Fleet.

The Mobilisation for the Manœuvres.—The mobilisation of the ships of the Home Fleet for the manœuvres took place on the 29th and 30th ult., the fleet afterwards assembling in the Downs. The ships of the Home Fleet taking part in the manœuvres are as follows :—

NORE DIVISION. (Battle-ships and Fifth Cruiser Squadron kept fully manned.)

First-class battle-ships.—*Dreadnought* (Flag-ship of Sir F. Bridgeman, Commander-in-Chief), *Agamemnon*, *Bulwark* (Flag-ship of Rear-Admiral the Hon. C. T. Colville, Commanding Nore Division), *Jupiter*, *Magnificent*, *Victorious*.

FIFTH CRUISER SQUADRON.

First-class armoured cruisers.—*Shannon*, *Warrior*, *Natal*, *Achilles*, *Cochrane*.

Second-class protected cruisers.—*Charybdis*, *Dido*, *Vindictive*.

Mine-ship.—*Latona*.

PORTSMOUTH DIVISION.

First-class battle-ships.—*Prince George* (Flag-ship of Rear-Admiral A. M. Farquhar, Commanding Division), *Illustrious*, *Vengeance*.

First-class armoured cruisers.—*Essex*, *Euryalus*, *Berwick*.

Home. First-class protected cruisers.—*Argonaut, Royal Arthur, Edgar, Hawke, Grafton, Crescent.*

Second-class protected cruisers.—*Terpsichore, Eclipse, Sappho, Furious, Bonaventure.*

Third-class protected cruiser.—*Pandora.*

Torpedo gun-boats.—*Seagull, Niger, Dryad, Harrier.*

Scouts.—*Foresight, Patrol.*

25 destroyers and 8 torpedo-boats, accompanied by the depôt-ship *Hecla.*

Mine-ship.—*Iphigenia.*

DEVONPORT DIVISION.

First-class battle-ships.—*Mars, Cæsar, Hannibal, Majestic.*

First-class armoured cruisers.—*Leviathan* (Flag-ship of Rear-Admiral J. Denison, Commanding Division), *Hogue, Donegal.*

First-class protected cruisers.—*Theseus, Gibraltar, St. George.*

Second-class protected cruisers.—*Iris, Doris, Æolus, Sirius, Fox* (fully commissioned to proceed to East Indies after manœuvres).

Torpedo gun-boats.—*Circe, Hebe.*

Scouts.—*Sentinel, Scout.*

19 destroyers and 11 torpedo-boats, accompanied by the depôt-ship *Leander.*

SHEERNESS.

First-class protected cruiser.—*Endymion.*

Torpedo gun-boats.—*Jason, Speedy, Speedwell, Gossamer.*

Scout.—*Pathfinder.*

Mine ship.—*Latona.*

18 destroyers and 6 torpedo-boats, accompanied by the depôt-ship *Blenheim.*

Some twenty submarines are also to take part in the manœuvres.

The Channel Fleet; two battle-ships of the Atlantic Fleet, the *Cornwallis* and *Albion*, with the First and Second Cruiser Squadrons, are also to take part in the manœuvres, and the whole Manœuvre Fleet is under the supreme command of Admiral Lord Charles Beresford, Commander-in-Chief of the Channel Fleet.

The Quebec Tercentenary Commemoration.—The new first-class armoured cruiser *Indomitable* has been selected to convey H.R.H. the Prince of Wales to Quebec for the Tercentenary Commemoration. Captain H. G. King-Hall, C.B., D.S.O., who has been appointed to command her, is to hoist the broad pennant of a second-class commodore during the cruise. The *Indomitable* is to be accompanied by the first-class armoured cruiser *Minotaur*, detached for the purpose from the Fifth Cruiser Squadron, while four battle-ships of the Atlantic Fleet, the *Exmouth*, flying the flag of Vice-Admiral the Hon. Sir A. G. Curzon-Howe, K.C.B., C.V.O., C.M.G. (Commander-in-Chief of Atlantic Fleet), the *Albemarle* (flag-ship of Rear-Admiral Sir J. Jellicoe, K.C.V.O., C.B.), *Duncan*, and *Russell*, with the cruisers *Venus* and *Arrogant*, have also proceeded to Quebec to be present at the Commemoration fêtes, where they arrived on the 14th inst. The Prince will embark on board the *Indomitable* on the 15th inst. at Portsmouth, arriving at Quebec on the 22nd inst.

France. The following are the principal appointments which have been made :—Vice-Admiral—Boué de Lapeyrère to Command of Squadron escorting the President of the Republic to Russia. Capitaine de Vaisseau—C. T. Charlier to "Kléber." Capitaines de Frégate—H. L. Philippe to Command of Fixed Defences at Rochefort; J. E. C. Ratyè to "Du Chayla"; H. J. Durand to "Isly"; P. H. Delzons to "Alger"; C. M. Lagrésille to "Cosmao."

Vice-Admiral Boué de Lapeyrère, Maritime Prefect at Brest, has been appointed to the Command of the Squadron which is to escort the President of the Republic on his visit to the Emperor of Russia; he hoisted his flag on board the new first-class battle-ship *Verité* at Brest, on the 5th inst., which was commissioned on the 15th ult. at that port. The President is to embark on board the *Verité* on the 17th inst. at Dunkirk, at which port the escorting squadron, consisting of the first-class armoured cruiser *Dupetit-Thouars*, the torpedo-aviso *Cassini*, and the destroyers *Baliste* and *Arquebuse* will rendezvous on that date.

Vice-Admiral Jauréguiberry, Commander-in-Chief of the Northern Squadron, with his flag flying on board the first-class armoured cruiser *Léon Gambetta*, with the first-class armoured cruiser *Amiral-Aube* in company, left Brest on the 4th inst. for Quebec, to represent the French Navy at the forthcoming Tercentenary Commemoration Fêtes.

Vice-Admiral Bellue took over his appointment of Maritime Prefect at Cherbourg on the 10th ult.

Rear-Admiral Berryer arrived at Tangier on the 19th ult., on board the cruiser *Descartes*, and immediately took over the command of the squadron operating on the coast of Morocco from Vice-Admiral Philibert, who embarked on board the *Descartes* for Cadiz, Admiral Berryer's flag being then transferred to the armoured cruiser *Kléber*. Vice-Admiral Philibert arrived at Paris on the 22nd ult., and was received by M. Thomson, the Minister of Marine, who conveyed to him the thanks of the Government for the eminent services he had rendered during his period of command of the Moroccan Squadron, and for the devotion and endurance displayed by himself, his officers and men during the exhausting and disagrēeable duty on which they had been engaged. Vice-Admiral Philibert made a full report to the Minister on the state of the ships, which is, on the whole, satisfactory, and made suggestions as to the relieving in succession of those which ought to return to France for docking and repairs. He highly praised the high state of *moral* of all ranks in the squadron, and the excellent relations existing between them and the troops on shore, as well as the excellent relations existing with the foreign diplomatic agents at the different ports, and with foreign authorities, notably the English Authorities at Gibraltar, who had rendered him and his squadron every possible assistance in their power.

Steam Trials.—The new first-class armoured cruiser *Jules-Michelet* has made two preliminary full-power steam trials at Lorient, which have proved very successful. On the 4th ult. she made a four hours' run at normal full speed, when the engines developed 26,850-I.H.P. without difficulty; on the 6th ult. a further run was made at full speed under forced draught, when the engines developed 29,000-I.H.P., giving a speed of 23·2 knots, or more than a knot over the guaranteed contract speed, the consumption of coal per I.H.P. per hour not exceeding 860 grammes (1¾ lbs.).

France.

La Situation Navale.—M. A. Rousseau has been contributing to the *Temps* a series of letters on the naval situation, of which the following is the first :—

I.

Anyone who should have predicted that the result of the Russo-Japanese War would be the upsetting of the relative positions of the principal fleets and the compromising of English supremacy, would have been laughed at; and, nevertheless, the war fleet of the United States, which only dates back to 20 years ago, now occupies the second place, and is sending round the world a fleet of battle-ships which, with the exception of England, no other Power could produce.

On the other hand, only a few weeks back Mr. Balfour asked a very serious question in the House of Commons :—"Will not the German fleet in 1911 contain more modern battle-ships than the English fleet?"

If we go back a month or two we may remember that fears were expressed as to the possibility of an armed conflict between the United States and Japan. For the first time in history there has been talk of an inter-Continental war, in which no European Power would be directly concerned.

The change has come with startling rapidity; the development of the modern fleet is not quite 20 years old, it dates from the Naval Defence Act of 1889. For the first time a naval Power, England, then laid down a series of eight battle-ships of more than 14,000 tons displacement. These vessels were, at the time, baptised "Mastodons," their tonnage, which then appeared enormous, is to-day considered quite small, and is surpassed in all navies of the first rank.

At the moment of the execution of the Naval Defence Act, that is in 1890, the naval strength of the six principal Powers was as follows:—

England	...	36	battle-ships, displacing	310,000 tons.
France	...	22	,, ,,	188,200 ,,
Germany	...	12	,, ,,	85,000 ,,
Russia	...	8	,, ,,	55,400 ,,
United States		Nil.		
Japan		Nil.		

We only mention battle-ships because this is the only type of vessel which has passed through the period of evolution without losing its value; the battle-ship was then, and remains, the class of ship on which all calculations of the power of a fleet are based.

England has borrowed from us the proverb, *Trop fort n'a jamais manqué.* For years she has continued to carry out without hesitation her battle-ship building programme, and it is only of late, when her supremacy was challenged, that she seems to attach a certain measure of importance to defensive vessels, such as torpedo-craft and submarines. England, before 1890, always preferred the largest ships, and in the table given above the mean displacement per ship was in the English fleet 9,000 tons, while in France it was 8,500, and in Germany it did not exceed 7,000 tons.

The English Naval Defence Act caused a great sensation at the time, and all other countries immediately proceeded to follow suit. In France, M. Barbey, Minister of Marine, prepared and carried through

France. Parliament a programme of new construction which, unfortunately, was never fully carried out. The United States introduced a programme which was also not completed, one of the vessels being the battle-ship *Maine*, afterwards the cause of the conflict with Spain. Germany undertook at a bound the construction of four battle-ships of 10,000 tons. Russia, for the sake of our naval support, cemented her alliance with France, and Japan sent to Europe for constructors and engineers to commence the fleet which was to conquer a European Power at Tsu-shima.

The ten years which followed was a period of gestation, ending in the development of the modern fleets now possessed by Germany and the United States, the two Powers formerly of least naval importance.

The following table shows the gain of each of the before-mentioned six naval Powers, in battle-ships and armoured cruisers :—

England, 34 battle-ships, displacing 472,351 tons (inclusive of 2 armoured cruisers = 24,000 tons).

France, 18 battle-ships, displacing 173,895 tons (including 7 armoured cruisers = 45,988 tons).

Germany, 9 battle-ships, displacing 94,074 tons (including 1 armoured cruiser = 10,482 tons).

Russia, 14 battle-ships, displacing 166,539 tons (including 3 armoured cruisers = 36,477 tons).

United States, 11 battle-ships, displacing 117,482 tons (including 2 armoured cruisers = 17,415 tons).

Japan, 11 battle-ships, displacing 132,700 tons (including 5 armoured cruisers = 18,400 tons).

During these ten years the production in England equalled that of the five other Powers, being an average of 10,000 tons per year. This period saw the birth of a new element in armoured fleets, that of the armoured cruiser, whose greatest development took place in the period of 1900 to 1906.

The armoured cruiser, which is a French idea (its prototype being the *Dupuy de Lôme*), is a vessel whose power has been curtailed so as to give her more powerful boilers and engines, and, consequently, greater speed than a battle-ship; the protected cruiser has disappeared before the armoured cruiser, and this latter, after a short life, is now in its turn doomed to disappear before the battle-ship, though it held a strong place in all navies at the period which opens with the 20th century.

This period was remarkable as one during which all nations made great efforts. France began her 1900 programme of new constructions; Germany in the same year modified her programme, which dates from 1898. The United States, in 1902, laid down at the same time a number of battle-ships and armoured cruisers which England herself in a single year has never equalled; Russia commenced the construction of the ships of the *Kniaz Savaroff* type, destined to be sunk in the waters of the Far East; and Japan, besides ordering ships in England, made such progress with home manufactures that she was able to do without foreign help in all that concerns the arming and completing of her ships; need we add, that she gained much in *matériel* during the war 1904-5, that her own fleet suffered little by actual losses, and found itself after the battle of Tsu-shima stronger than ever

The following are the figures for the period 1900 to 1906 :—

France. *England*, 52 armoured vessels, displacing 680,000 tons (including 33 armoured cruisers = 329,000 tons).

France, 23 armoured vessels, displacing 265,946 tons (including 17 armoured cruisers = 178,156 tons).

Germany, 23 armoured vessels, displacing 267,201 tons (including 7 armoured cruisers = 68,004 tons).

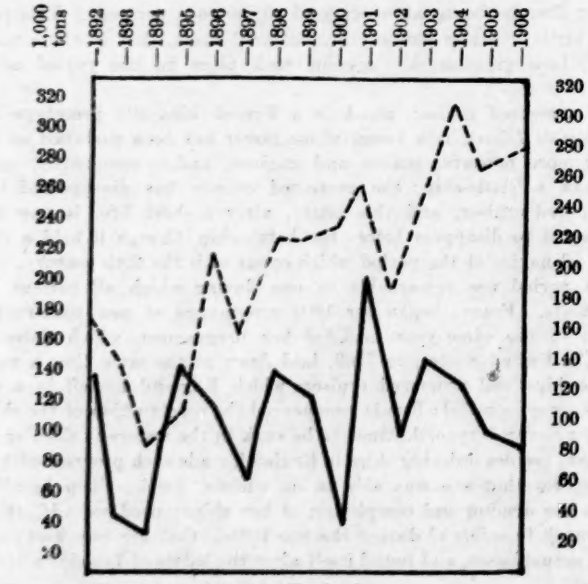
Russia, 12 armoured vessels, displacing 170,538 tons (including 1 armoured cruiser = 7,716 tons).

United States, 29 armoured vessels, displacing 403,460 tons (including 13 armoured cruisers = 169,180 tons).

Japan, 14 armoured vessels, displacing 164,281 tons (including 6 armoured cruisers = 59,863 tons).

From 1890 to 1906, in seventeen years England has built more than 1,100,000 tons of battle-ships and armoured cruisers, and has devoted very nearly 2 milliards of francs to their construction, not counting what she has spent on unarmoured cruisers, torpedo-vessels of different types, and submarines. England kept ahead of all the world in naval construction from 1890 to 1900, and it is only from the latter year, or rather from 1901, that she has ceased to keep the lead which all other nations covet, and which one alone has had the energy and perseverance, patiently and methodically, and, we would add, almost surely to contest.

The history of the struggle made by England against all the naval Powers, or rather against any coalition possible, laying down battle-ship against battle-ship, not hesitating before any sacrifice, going so far as to spend a milliard of francs in one year alone, is shown in the following diagram, the figures of which are furnished by Lloyd's:—



Tonnage produced by England.
- - - - Tonnage produced by all the naval Powers except England.

France. The word struggle which we used above, is not an exaggeration, the examination of this diagram will fully justify it. The two lines, one representing the fighting ships produced by England, and the other those of all the rest of the naval Powers, would seem to have been traced under the same impulsion, the falling of one corresponds with the falling of the other, and the rising again is as simultaneous. The struggle still goes on, but from 1904, notwithstanding further pecuniary sacrifice, the production in England is exceeded by that of the other Powers, and the two lines separate in a most marked manner, one descends and the other rises, the equilibrium is broken. In this last period the British Navy has barely exceeded by 10,000 tons the productions of the building yards of Germany and the United States.

And, nevertheless, when we consider the gigantic effort made by England and her power of rapid construction, it may be asked whether the superiority of the English fleet is not definitely established? It is superior at the present time to no matter what coalition of any two fleets, and we can hardly believe that this superiority will be disputed in the near future.

It must not, however, be forgotten that the question has been asked in the British Parliament, and it is interesting to inquire whether the future of the British fleet is compromised, and the interest of this study is all the greater, entailing as it does the consideration of the position of the other Powers.

A. ROUSSEAU.

—*Le Temps*, *La Vie Maritime*, and *Le Moniteur de la Flotte*.

United States. *Rear-Admiral Brownson's Protest against the Appointment of a Medical Officer to the Command of Hospital-ships*:—Under the pressure of a Congressional resolution the Navy Department has finally made public the memorandum of Rear-Admiral Brownson on the subject of appointing medical officers to the command of hospital-ships. Accompanying this memorandum, which appears below, is one from Rear-Admiral Converse, who preceded Rear-Admiral Brownson as Chief of the Bureau of Navigation, and other documents, a list of which is given at the end of this article.

In a memorandum submitted June 4, 1906, the then Chief of Bureau, Rear-Admiral Converse, concurred in the opinion expressed by the General Board of November 23, 1904, advising against placing hospital ships in commission in time of peace, showing that the controversy has been of very long standing. The Converse memorandum also says: "It is necessary in enforcing discipline and maintaining efficiency that the officers and crews of hospital ships, as well as of other vessels belonging to the Navy, should be subject to the laws and regulations governing the Navy, and that the officers entrusted with the command of these vessels should be those whose experience and training qualify them for commanding and navigating the vessels under all conditions of weather and unforeseen contingencies, and the Bureau, therefore, seriously doubts the advisability or wisdom of placing sea-going vessels under the command of medical officers, whose professional training, however proficient in the practice of medicine and surgery, has not been such as to render them well fitted for the com-

United States.

mand of vessels always in close communication with the fleet, and her commanding officer should be one on whom the admiral could rely for the proper handling of the ship as an adjunct of the fleet, and whose knowledge of naval matters, signals, and ready and prompt obedience to orders could at all times be not only relied upon, but efficiently performed.

"Finally, the military and other professional insight afforded the persons on board hospital ships of the fleet operations, plans, bases, in time of peace—and particularly so in time of war—might be used to our great injury and result most unfortunately for the success of our forces were such opportunities to gain military information made available to persons not of the naval service and not subject to its discipline, as would be the case were the *personnel* of hospital ships composed of civilians."

The memorandum of Rear-Admiral Brownson is dated November 18, 1907. In this the Admiral earnestly requests a reconsideration of the determination concerning the command of hospital ships, dated December 12, 1906, which appears to be the outcome of the recommendation of a joint board of medical officers of the Army and Navy, convened by order of the Secretary of War, to "consider improvements in the first aid dressings and uniformity of equipment in the medical departments of the two Services." Rear-Admiral Brownson goes on to say :—

"The bureau is well aware that it does not require professional training in navigation, ordnance and seamanship to command a hospital, provided such hospital is located on shore, or even if such a hospital were a hulk securely and safely moored, and not required to move, but the fact must not be lost sight of that the use to which a vessel is put has no effect whatever in lessening the dangers which will be encountered in navigating such a ship in all kinds of weather and under various circumstances.

"It requires just as skilful a navigator to pilot a hospital ship as it does to pilot a man-of-war, a mail steamer, or a yacht. The difficulties of pilotage, navigation and handling a vessel are wholly independent of its internal arrangements or the uses to which the vessel may be put.

"The statement of the Surgeon-General that a hospital ship "is not a man-of-war, but a hospital," does not give a complete statement of the case. Without doubt a hospital ship is not a man-of-war, but has a peculiar status which is clearly defined by the Geneva Convention. On the other hand, to call it a hospital does not fully describe the ship. It would be more nearly correct and descriptive of its true character to state that a hospital ship is a seagoing vessel having a large hospital on board, and it is for the general administration, navigating and handling of the "seagoing vessel" that a sea line officer should be ordered to command. As to the control and administration of the Medical Department of such a vessel, existing regulations give medical officers all necessary authority to control and care for their department on board ship.

"The Surgeon-General again states that "the command of the medical officer should be absolute," and that the captain should not be a naval officer, but should belong to the merchant marine and should have entire control of the navigation of the ship and of the civilian crew and regulate

United States.

discipline and matters pertaining to them." It would seem from this statement that in the opinion of the Surgeon-General the navigation, safe conduct, and general administration of a seagoing vessel are secondary as regards the responsibilities of command.

"Telegraph operators or cable engineers are not put in command of cable ships, nor are postmasters put in command of mail steamers. A battle-ship can with propriety be called a floating fort, but artillery officers are not fitted for the command of them. It must not be forgotten that a ship is an inanimate object and requires at all times a competent officer in command to insure the safety of the vessel at sea.

"Long experience with merchant crews and officers on board naval colliers, tank ships, transports, supply vessels, etc., shows that officers of the merchant marine do not perform this duty as efficiently as naval officers.

"Some years ago on the Asiatic station the auxiliaries were manned in three different ways. First, a number with full naval crews. Second others with merchant crews, and third, several with merchant crews and officers and one line officer of the Navy in command. In addition to the line officer there was a paymaster.

"As the result of experience with the various systems all in force at the same time and under similar conditions, officers who have had experience with naval auxiliaries agree that the most efficient organisation is obtained when these vessels are manned with a full naval crew, and it is only because of the fact that at present there is such a shortage of officers and men that naval auxiliaries are not so manned.

"Of the three systems above noted that which caused the greatest number of complications and was the least efficient was the third—namely, a naval officer in command with a full merchant crew and officers. On board such vessels the crew and officers are amenable only to the navigation laws of the United States. They are shipped and discharged in the presence of a United States naval officer or the Shipping Commissioner, or in a foreign port in the presence of a United States Consul or United States naval officer. Neither the United States Navy Regulations nor the navigation laws of the United States contemplate any such division of authority as exists on board a vessel so manned.

"Notwithstanding the fact that these instructions appear to be explicit, complications constantly arose, not only regarding the navigation of the vessels, but also in respect to the administration of affairs, including relations with the crew.

"As regards the navigation of the vessel, the case of the *Iris* running ashore on Sikijor Island may be cited, and the case of a disturbance created by the second officer of the *Nanshan* in the harbour of Hong Kong may also be mentioned as regards the relations of the naval officer with the crew.

"If a hospital ship were merely a floating hospital, as the Surgeon-General states in his endorsement, and the ship were securely moored and not called upon to move from point to point, it would, perhaps, be well not to have any sea line officers on board. It would appear, however, that in addition to the navigation of the vessel and ship administration

United States.

connected therewith the discipline of the crew has been entirely lost sight of. Both the law and the Navy Regulations state that officers of the line exercise military command.

"On board a hospital ship, when in commission for sea service and cruising in company with a fleet, there will always be a certain number of enlisted men of the Navy Marine Corps, and, perhaps, of the Army, who are convalescent, many of them practically well and nearly ready for duty.

"The temptation for these men to commit infractions of discipline will be various on board a hospital ship, and in addition to the ordinary infractions they will be liable to get into difficulties with the merchant crew of the vessel; the latter, if the vessel is manned in accordance with the recommendation of the Surgeon-General, are amenable only to the navigation laws of the United States. The bureau fails to see how there can be any complete control over the discipline of the *personnel* on board a hospital ship when part of such personnel is amenable only to one set of laws, the other to the Navy Regulations, the officer in command being an officer who by law is forbidden the right of exercising military command, except in his own corps, the master of the ship being a civilian with no legal right to control men in the Navy.

"Officers entrusted with the command of United States vessels, whatever their rank, must, while properly in ship command, have full command, authority and precedence over all officers and persons of whatever rank serving in such vessels. The efficiency of every military organisation requires of the commanding authority, besides the general duties of command and direction, the additional duties of organisation, police and inspection. All these appertain to and go with the command. The officer in command of a vessel is not authorised to delegate his power except for the carrying out of the details of the general duties to be performed by his authority. The command is his, and he can neither delegate the duties of it to another nor avoid its burdens, nor escape its official responsibilities, which cannot be assumed by or fall upon any other person.

"By the force of naval law and regulations made in conformity therewith the above principles are established and exist as essentials of all naval military service, without which there can be neither command, discipline, nor responsibility.

"The Surgeon-General states that "with a medical officer in command occasions for conflicts and differences of opinion on questions of expediency and methods of procedure affecting the ship as a hospital would be removed."

"The Navy Regulations clearly define the exact status of medical officers on board ship as regards their duties, prerogatives and responsibilities. With a line officer in command no situation can arise which is not fully covered by the regulations, but with a medical officer in command a situation is at once created which is not only contrary to existing law, but which has no precedent in our Service.

"It appears clear to the bureau that by removing the line officers the "occasions for conflicts of authority" would be multiplied instead of diminished.

United States.

"The Surgeon-General again states "the discipline of the medical branch should be in the hands of the medical officer in command."

"The Surgeon-General seems to have overlooked or disregarded the question of the control of the paymaster, the discipline of enlisted men embarked in the hospital ship as patients and the members of the crew of the vessel.

"The bureau takes strong exception to the following statement of the Surgeon-General :—

"The command is eminently a non-combatant one, is consequently not desired by officers of the line, and falls naturally to a medical officer whose knowledge and experience in all matters relating to the administration of quarters for the sick and the treatment and handling of patients fit him for the command of a ship which is not a man-of-war, but a floating hospital."

"The bureau is of the opinion that the above is not a logical deduction, for were it so that "knowledge and experience in all matters relating to the administration of quarters for sick and the treatment and handling of patients" fit a man for the command of a seagoing vessel (employed as a hospital ship) it would also follow that the manager of a large, well-run hotel would be competent to command a large trans-atlantic liner engaged in the passenger trade, which is also not a man-of-war, but a floating hotel.

"In conclusion the bureau has to state that this is a matter of vital importance to the naval service, and it is requested that the Department's former decision be revoked and that instructions be issued for the commissioning of the *Relief* with a full naval crew and officers."

The documents sent to Congress in the order of their sequence are as follows :

1. G.O. No. 61, N.D., Aug. 20, 1904, authorising medical officers of the Navy to use the term "in command of."

2. G.O. 84, W.D., May 5, 1906, publishing the report of the joint board of medical officers of the Army and Navy, with the comments thereon of Surgeon-General Rixey and Rear-Admiral Converse (quoted from above).

3. Recommendation of Surgeon-General Rixey that the U.S.S. *Relief* be put in commission "with a naval medical officer in general command as the responsible individual."

4. Memorandum relating to the command of hospital ships citing precedents to sustain the contention of the Surgeon-General and a long reply to this by Rear-Admiral Brownson.

5. Rear-Admiral Brownson's letter of resignation and the President's letter accepting it.

6. Communications and orders relating to the commissioning of the *Relief*.

7. The President's letter of Jan. 2, 1908, to the Secretary of the Navy condemning Rear-Admiral Brownson, and the President's letter of Jan. 4, 1908, giving his reasons for concluding that medical officers should command hospital ships.

8. Letter from Surgeon-General Rixey, dated Jan. 22, 1908, in reply to Admiral Brownson's memorandum, given above.—*U.S. Army and Navy Journal.*

MILITARY NOTES.

Home. The following are the principal appointments which have been made :—

General—Sir C. H. Brownlow, G.C.B., I.A., to be Field-Marshal.

Lieut.-Generals—Sir O'M. Creagh, V.C., K.C.B., I.A., Military Secretary, India Office, to be General. Sir E. T. H. Hutton, K.C.M.G., C.B., to be Colonel Commandant The King's Royal Rifle Corps.

Major-Generals—E. A. H. Anderson, C.B., to be a Divisional Commander, India. J. E. Nixon, C.B., I.A., to be a Divisional Commander, India. M. H. S. Grover, C.B., I.A., to be Inspector of Cavalry, India.

Colonels—C. L. Woollcombe, C.B., a Brigade Commander in India, to be a Major-General. S. H. Lomax, h.p., to be a Major-General. W. R. Kenyon-Slaney, C.B., h.p., to be a Major-General. W. J. A. Beatson, to be an A.A.G., India. H. V. Cox, I.A., to be an A.Q.M.G., India. J. Fowle, h.p., to Command a Brigade, Territorial Force. R. C. B. Haking, from General Staff Officer, 1st Grade, 3rd Division, to be a Brigadier-General, General Staff, and is granted the temporary rank of Brigadier-General whilst so employed. E. S. Hastings, C.B., D.S.O., I.A., to be a Brigade Commander, India. J. C. Swann, C.B., I.A., to be a Brigade Commander, India. A. Wallace, I.A., to be a Colonel on the Staff, with the temporary rank of Brigadier-General. J. A. Bell, I.A., to be a Colonel on the Staff, with the temporary rank of Brigadier-General. W. F. Cahusac, I.A., to be an A.Q.M.G. C. T. Robinson, from h.p., to be an A.A.G. A. G. Hunter-Weston, D.S.O., to be a General Staff Officer, 1st Grade.

Austria-Hungary. *The Imperial Manœuvres in 1908.*—These manœuvres will take place in Western Hungary at the beginning of September. The zone of the operations will be limited by the places Oedenburg-Raab and Seinamanger-Veszprim. The field of operations, the upper Hungarian plateaux, will be bounded on the north by the Danube, on the east by eastern spurs of the Styrian Alps, on the south by the Platten Lake, and on the west by the Raab. The soil is clay mixed with sand, is very fertile, for the most part cultivated, and is partially wooded; large woodlands stretch from the above-mentioned mountains down to the plains; they are, however, very dense, and, therefore, only permit of the employment of the larger forces in small masses. Where there are only small segments of wood there is no hindrance to free movement; the view is, however, limited, and thus the difficulty of reconnaissance and connection is increased. The rivers by which the manœuvre area is watered partake of the character of mountain torrents, and in the plains wind tortuously through frequently muddy and here and there swampy country, with a tendency to sandbanks and islands, and with very low banks. They, therefore, readily widen and cause inundations frequently many kilometres wide. In consequence of the frequently flooded or softened banks, the difficulty of throwing bridges across them, and the advance, especially of mounted men, is greatly increased. Many canals, too, intersect the district. The manœuvring troops will, therefore, be obliged to have constant recourse to improvised methods. It will be demonstrated during this year's Imperial Manœuvres whether it is better to leave the troops to provide the necessary bridging material, or whether the infantry

Austria-Hungary.

pioneer detachments should be equipped with special *matériel*. For this reason the manœuvres should prove interesting. It is not improbable that a portion of the troops coming from the south to the Imperial Manœuvres may possibly traverse the Bakonyer Wood. This is a central chain of mountains 500 metres high, and thickly wooded; even if it can be termed tolerably passable, a portion of the columns will have to go by mountain tracks, and a road will have to be constructed for the artillery, so as to transport the guns, etc., over the most difficult passes.

In all probability a portion of the Northern or Southern force will have to make the passage of the Danube. That river forms, below Pressburg, a very severe obstacle, and requires from 7 to 16 military bridging trains to cross it. Strong winds make the construction of a bridge very difficult, and even dangerous, for light military bridges. In case of one or both forces having to cross the Danube, a portion of the Danube Flotilla will be attached to each force. This flotilla, at the present time, consists of the monitors *Temes*, *Bodrog*, *Szamos*, *Maros*, and *Leitha*, and two patrol-boats.

The following will take part in the manœuvres:—The IVth (Buda Pesth) Army Corps, the Vth (Pressburg), and the XIIIth (Agram) Army Corps, 3 to 4 Honved infantry divisions, and 2 Honved cavalry brigades. Companies will be made up to a strength of 130 men for the Imperial Manœuvres, and squadrons to one of about 140 men. The total number of troops taking part in the manœuvres will be 84 battalions, 42 squadrons, 36 field batteries, 12 howitzer batteries, 14 pioneer companies, and 2 siege howitzer divisions.—*Internationale Revue über die gesamten Armeen und Flotten.*

Bulgaria.

The Contingent for 1908.—The 1907 recruiting operations dealt with 40,000 young men fit for service. Of this total the contingent called out from the 1st March to the 1st April was distributed as follows by the War Minister:—

1st Portion of the Contingent.—Men called out for 2 years in the infantry, and for 3 years in the other arms.

	Men.
Infantry.—15,540 men, viz., 420 men per regiment, and 630 men in each of the 2 regiments of the Sofia Brigade ...	15,540
Cavalry.—2,210 men, viz., 180 men for each of the 6 cavalry regiments of 6 squadrons, 240 men for each of the 4 regiments of 4 squadrons, and 170 men for the Guards Cavalry Regiment	2,210
Artillery.—2,721 men, viz., 228 for each of the 9 field artillery regiments, 94 for each of the 3 mountain artillery groups, 129 men for each of the 3 fortress artillery battalions	2,721
Artillery arsenal and ammunition depôts	124
Engineers.—1,545 men, viz., 136 for each of the 9 pioneer battalions, 250 for the railway regiment, 71 men for the pontoon battalion	1,545
Divisional hospitals and military school, and school for reserve officers	110
Danube and Black Sea flotilla	420
Total	22,670

Bulgaria. The 2nd portion of the contingent called out for four to six months, and only in the infantry, and formed, as a rule, from elements more propitious to recruiting, consists in 1908 of 17,107 men (22,400 in 1907), and of these, 9,720, or 270 per regiment, were enrolled at the same time as the first portion.—*Revue Militaire des Armées Etrangères.*

France. *Draft of the War Budget for 1909.*—The draft of the Budget of the expenditure of the War Department for 1909 has been laid down in adopting the following divisions :—

1st Section.—Home Troops. { 1st Part.—The Interior. 2nd Part.—Algeria-Tunis.

2nd Section.—Colonial Troops.

3rd Section.—Construction and new *matériel*; reserve supplies, in order that the expenses applicable to Algeria and Tunis should appear in distinct chapters, and to group into a single section the extraordinary expenditure which formerly was the object of a 3rd and 4th Section.

	francs.
The expenditure for 1909 amounts in all to ...	798,327,606
The 1908 Budget amounted to	779,875,128
Total increase	18,452,478

The comparison, by sections, of the credits asked for 1909, and those voted for 1908, are as follows :—

—	Credits voted in 1908.	Credits demanded in 1909.	Increase.	Decrease.
1st Section ...	682,183,666	{ 1st Part–622,317,292 / 2nd Part–73,955,629 }	14,089,255	—
2nd Section .	37,431,383	35,871,242	—	1,560,141
3rd Section ...	{ 21,528,300 / 38,731,779 }	66,183,443	5,923,364	—
	779,875,128	798,327,606	20,012,619	1,560,141
		Total increase ...	18,452,478 francs.	

—*Budget Général de l'Exercise, 1909.*

Germany. *The Provisioning of Armies in War.*—The question of the feeding of the enormous modern armies is greatly occupying the attention of the military authorities of the various European Governments. In this regard it may not be without interest to quote an interesting article of the *Magdeburgische Zeitung*, which was reproduced in the French Supplement of the *Internationale Revue über die gesamten Armeen und Flotten*, an article which lays stress on the importance of exploiting the resources of the country by the troops themselves outside the action of the Commissariat Department.

Germany.

Whoever has gone through war as a soldier, knows perfectly well how great is the importance of good feeding for the troops with regard to the efforts they may be called upon to make. In the first place, it renders the men less liable to disease, such as dysentery, typhus, cholera — those terrible scourges of armies. It also assists in the avoidance of such waste as, from the opening of peace negotiations, may sometimes counterbalance success obtained in the field. In a pamphlet entitled, "The Co-operation of Troops in the Provisioning of Monster Armies in Future Wars," the author, Major-General Laymann, states that this co-operation of the troops will constitute a decisive factor in the formidable drama which a modern war will be. "We must," says the general, "bear the losses caused by hostile weapons; but in war disease carries off more victims than the enemy's arms, and it is perfectly feasible to diminish those losses by feeding the troops well. Bad nourishment, as a matter of fact, in war, is the cause of most of the sickness and death, both directly, on account of the affections of the digestive organs it provokes, as well as indirectly, by lessening the degree of physical resistance to disease and its effects." Good feeding, too, in the general's opinion, exercises a favourable effect on the *moral* of the men, and makes them less liable to depression of spirits and to panics.

In a future war, too, the good feeding of the men will be of even greater importance than in the past, because the increasing comforts of life have accustomed people, even of the lower classes, to greater luxury, and that has to be taken into account in the feeding of the soldier. Then, too, war in the present day demands of the soldier greater moral efforts than ever, and his courage should increase with the horrors of war. But the far greater effectives of modern armies will seriously increase the difficulties of feeding the troops, especially when they have penetrated a hostile country, and when the provisioning has to be carried out altogether or partially from the Motherland.

The possibility of good feeding in war depends on two things: the necessary food stuffs should first be gathered together, and then be issued to the troops without losing any of their nutritive power. The first point concerns the administrative services, or more especially the commissariat, as long as the supplies come up from the rear, either from the Motherland or from neighbouring districts not occupied by the armies. The second point is a matter for the troops, when the latter procure food on the spot or when the men are fed by the population. In all cases the judicious use of existing food stuffs devolves upon the troops alone.

Hitherto it has generally been considered that the getting together of food stuffs on the theatre of war by the commissariat was the most economical solution, and that it was also a guarantee for the equitable distribution of the food, whilst the getting together of the food stuffs by the troops themselves was regarded as harmful to discipline. This opinion was negatived by the wars of 1866 and 1870-71; it has no foundation whatever. The assembly of food stuffs by the commissariat results not only in a less complete working, but also hampers the operations. There is nothing whatever in the idea that the direct method of supply gives rise to indiscipline. In theory, it is true that the supply of food in bulk by the commissariat ensures a more uniform and equitable distribution to

Germany.

the troops than when chance decides that such or such a force shall occupy a very rich or a very poor village. But in practice it is generally the case that all troops, without distinction, are badly served. The circulation of the food by the commissariat is considerable, and is opposed to the principle that in war everything should be as simple as possible, since even the most simple is, in truth, difficult. General Laymann shows very clearly the difference between the indirect, or commissariat, method of supply, and the direct method, or that made by the troops themselves. "The food-supply by the commissariat," he says, "leads far sooner to hunger than the supply of food by the troops themselves, and, therefore, the former method is dangerous to discipline."

The commissariat should, therefore, confine itself to bringing up food stuffs from the Motherland, or from districts at a distance from the theatre of war, and should bring all its talent and zeal to this object. The troops, for their part, will have to exploit the zone occupied, and to take care that the existing food stuffs are made use of under the best possible conditions.

Italy.

Extraordinary Expenditure.—The Italian Government has recently drawn up a bill providing for an extraordinary expenditure, for the War Department, of 223 million lire (25 lire = £1). This sum is distributed over all the financial years up to the 30th June, 1917. It should also be noted that it is independent of the extraordinary credit of 60 million lire which was granted by the law of the 14th July, 1907, and which should be spent by the end of 1910. It should also be pointed out that the date selected for the completion of the extraordinary works on behalf of the War Department is precisely the same at which the extraordinary credits voted for the Navy should be completely expended. It therefore follows that at the date mentioned above the Italian Government expects to have its Army and Navy thoroughly ready for all eventualities. The following are roughly the general lines of the bill for extraordinary expenditure for the War Department:—

An extraordinary credit of 13 million lire is provided for the financial year 1907-08. This credit is thus distributed:—

Mobilisation Supplies	1 million lire.
Manufacture of Powerful Coast Artillery ...	2 ,, ,,
Manufacture of Field Artillery *Matériel* ...	7 ,, ,,
Armament of Fortifications	2 ,, ,,
Construction of Barracks, Ranges, etc. ...	1 ,, ,,
Total	13 million lire.

On the other hand, a round sum of 210 million lire is provided for the following financial years, at the rate of 25 million each for 1910-11 and 1911-12; of 30 million each for 1912-13, 1913-14, and 1914-15; of 35 millions each for 1915-16 and 1916-17. This sum is distributed as follows:—

	Small arms, ammunition, accessories ...	6	million lire.
Italy.	Supplies on mobilisation, *matériel* for railway brigade, etc.	14	,, ,,
	Field and mountain artillery, machine guns, ammunition	75	,, ,,
	Powerful artillery, for frontier and sea defence, and siege parks	40	,, ,,
	Fortifications, roads, railways, etc.	50	,, ,,
	Barrack construction, ranges, armouries, etc. ...	15	,, ,,
	Horses for artillery, machine guns, and cavalry	5	,, ,,
	Surplus sum	5	,, ,,
	Total ...	...210	million lire.

It is extremely probable that the credits asked for by the Government may even be increased by the Parliament, for, in the Senate, during the discussion on the War Budget, Admiral Morin, former Minister of the Navy, and General Pedotti, former War Minister, declared that the sums demanded for the defensive organisation of the land and sea frontiers were notoriously inadequate, and that they should be very considerably increased.

Recruiting for 1906.—The Inspector-General for Recruiting has just published his report on the statistics of the 1886 Class enrolled in 1906. In calling out this class the 2nd Category was abolished, consequently all the young men enrolled were drafted into the 1st Category.

The total number of recruits on the lists, including those belonging to previous classes, amounted, at the commencement of the operations, to 475,737. The number of those struck off for various causes brought the number of those available for recruiting down to 469,711. For the 1885 Class this number was 479,116; there was, therefore, a decrease for the 1886 Class of 9,405 men with regard to the previous class.

The recruiting boards struck off 12,196 men for various reasons, such as death, foreign subjects, doubly entered, etc. They cast 110,310 recruits. The numbers cast by the districts themselves amounted to 11,056, which brought the total number of recruits cast to 121,366. The number of those put back amounted to 122,205. The number of those failing to appear was about 26,800. Finally, at the close of the operations, the number of young men definitely enrolled in the 1st Category amounted to the very weak strength of 85,942.

It is just this unsatisfactory result of the recruiting operations which decided the Italian Government to modify the recruiting regulations by diminishing the number of those excused, which was very high. These modifications, which were voted in 1907, will probably result in giving 100,000 recruits as the average yearly contingent.—*La France Militaire.*

Russia.

The Contingent for 1907.—The contingent raised for the whole of the land and sea forces in 1907, in the districts under the law for general recruiting, amounted to 463,050 men. This contingent exceeds those of the years previous to the war with Japan. Since 1904 there has been an increase of about 150,000 men, owing partly to the necessities of the war, and partly to the reduction in the period of service with the colours to three years. In 1902, the contingent amounted to 318,745; in 1903, to 320,832; in 1904, to 447,402; in 1905, to 475,346; and in 1906, to 469,716 men.

The 1907 class was composed as follows :—

	Men.
On the recruiting lists	1,204,868
Put back and not drawing lots	93,138
Total	1,298,006

As regards religion, the 1907 class was :—

Christians	1,100,778
Israelites	63,309
Karaiins	103
Mahomedans	38,321
Pagans	1,857

Those exempted for family reasons amounted to :—

1st Category	273,855
2nd Category	238,526
Total	512,381

In 1907 the number of men failing to appear was 87,292, of whom 30,977 were Israelites. The Commissioners had to examine 701,914 young men in 1907, and the following was the result of this examination :—

	Men.
Totally unfit for service	76,150
Drafted into the Militia (2nd Levy) for lack of height, sickness, or constitutional defect ...	61,314
Put back	74,273
Taken on trial	34,333
Medically examined a second time	4,503

Of the 463,050 men of the contingent, 19,557 failed to appear; 440,236 were drafted into regiments; 3,249 were drafted into the reserve, owing to their professions; and 8 were exempted. The 19,557 men who failed to appear, were thus divided :—

	Men.
Christians	7,505
Israelites	10,789
Karaiins	12
Mahomedans	1,168
Pagans	83

Russia. As regards education, the proportion of men who can read and write increases every year, as the following table shows :—

	1903.	1904.	1905.	1906.
Enrolled	314,798	424,875	443,969	445,455
Able to read	21,968	36,560	39,245	40,977
„ write	102,547	132,927	144,709	163,886
Total	124,515	169,487	183,954	204,863

Musketry Courses for Infantry Officers.—An order of the 1st February, 1908, formed, as a tentative measure, musketry courses for second-captains of infantry, three in the Moscow, and two in the Vilna districts. The object of these courses is to prepare candidates for the command of infantry companies, as regards musketry.

Conditions for Admission.—The number of captains detached is two per regiment of four battalions; officers selected must be well reported upon professionally; be, at least, a second-class shot; be able personally to go through all gymnastic exercises, bayonet fighting, and sword drill. They have to undergo preparatory examinations, at the Army Corps Staffs, in the regulations, instructions, and military science, so that no time may be wasted during the course.

Organisation.—The general organisation of the courses is as follows :—The exercises are altogether of a practical nature. They consist of daily musketry practices, completed by field exercises, which gives the officers an opportunity of perfecting themselves in the direction of fire, and of developing their tactical knowledge. The theoretic exercises are confined to the most elementary lectures on the various branches of the Service, and to the war game. The shortness of the course (six weeks) does not permit of an organised system of instruction for second-captains in the art of rifle and revolver shooting, but a special allowance of cartridges is given them, with which they may practice when at leisure.

A considerable allowance of cartridges is also provided for demonstration firing with rifle and machine gun, and for field firing in conjunction with artillery; blank cartridges are also issued for tactical exercises.

Exercises in the direction of fire consist of :—

1. Preparatory field-firing exercises with troops;
2. Two field-firing exercises with manœuvres;
3. Field-firing exercises with manœuvres of detachments of all arms (at least three times during the course).
4. Experimental firing.

For carrying out these exercises the troops should be at the higher effective, viz. : at least 64 files per company. The officers are divided into groups of 10, who, in turn, command sections, half companies, and companies. To lend more interest to these exercises, the ranges should

Russia.

be furnished with an abundance of varied objectives, with movable head and shoulder targets, appearing and disappearing, to represent the various phases of an action. These exercises should always conclude with a critique of the faults committed, pointing out the means for remedying them.

Officers are exercised in judging distance; they are also made familiar with machine gun firing, and with the *matériel*, mounting, dismounting, mechanical action, causes of jamming, and means for avoiding the same.

Personnel.—The *personnel* of the course consists of: a general or colonel, as director; 10 officers, half as instructors of musketry, and half as instructors of tactics; a field officer of artillery, and an engineer officer; a subaltern officer, in charge of arms and correspondence.

As a tentative measure, in 1908, the Moscow District has three musketry courses. An infantry brigade, an artillery brigade division, and two cavalry squadrons are attached for the period of the courses.

School of Gunnery for Artillery Officers.—An Imperial Order of the 1st July, 1907, re-organised the artillery officers' School of Gunnery as follows:—

The following are the objects of the School:—

1. The theoretical and practical instruction of captains and field officers of artillery in the conduct of battery and group firing;
2. The development and perfecting of methods of firing and of manœuvre, and the laying down of rational rules to be observed for the employment of artillery fire in action;
3. The investigation of regulations regarding gunnery and drill.

The two batteries attached to the School have the following composition:—

Field Battery.—6 Q.F. field guns, with 3 horsed ammunition wagons; it has the following *matériel* unhorsed: 2 Q.F. field guns, 5 ammunition wagons, 4 Q.F. mountain guns, 2 Q.F. field howitzers, 8 light guns with 4 ammunition wagons, and a light field kitchen.

Horse Battery.—6 Q.F. guns and 2 horsed ammunition wagons; it has, in addition, the following *matériel* unhorsed: 4 wagons, 6 horse battery guns with 2 corresponding ammunition wagons, 2 mountain horse artillery guns, and a light field kitchen.

The *personnel*, temporarily detached, consists of artillery captains likely to become battery commanders,[1] and of field officers commanding batteries likely to become brigade division commanders. The number is fixed, according to requirements, by the Chief Artillery Direction. The School is under the chief supervision of the Inspector-General of Artillery.

Every year a commission, selected by the War Minister, and consisting of field officers of infantry, cavalry, artillery, and staff, attend the gunnery practice, lasting for ten days, and examine the drills of the officers at the School.—*Revue Militaire des Armées Etrangères.*

---

[1] In Russia, batteries are commanded by lieut.-colonels, and brigade divisions by colonels.

United States.

The New Militia Law.—The signing of the Militia bill by President Roosevelt on 27th May last, marks a new era for the organised militia of the United States, and one which will be of vast importance to it and to the Army. The state forces have now become a part of the first line of defence with the Army, and their close relations with the latter force will be of immense value. The calling of the National Guardsman in the future will mean a strict realisation of military duty, and the citizen soldier must be prepared to go wherever his services are needed, and stay as long as he may be required, or until his enlistment expires. Under the new bill the status of the National Guardsman (using the term for convenience as representing all the organised militia) is raised, and he is practically a part of the Regular establishment. The new law provides for the service in war of the organised militia whenever the President shall call forth the Militia, anywhere that he may choose to employ that force, either within or without the borders of the United States, and without going through the laborious mustering-in formalities observed for the war with Spain. Provision is made, by an appropriation which shall not exceed 2,000,000 dollars in any year, to fully equip the organised militia for active duty at Federal expense.

The United States of America, for the first time in its history, will now have a peace force which will be of immediate use when war comes. The transformation of the National Guard as it stands into a voluntary army ready for service anywhere, adds to the first line of defence for war just the number of men that the force contains. Thus, the first line will consist of the Regular Army and the organised militia, behind which the great mass of volunteers, which any great war will require, can be raised. The National Guard is in no way changed as to its state duties; it is merely made ready for instant national service should war come. The class of men in it will, it is expected, be far in advance, in serious purpose and interest, of those who in the past may have joined it largely for pleasure, without taking into account the serious side of soldiering. Some critics advance the opinion that when young men fully realise the new responsibilities they are undertaking when they enlist in the National Guard in the future, the enlistments may in time of peace be too few. Let us hope, however, that this will not be the case, and that the new conditions of things will be a stimulus for men to enlist who desire to be known and respected as real soldiers, rather than men who merely want to wear a uniform for a good time. The National Guard for many years has been improving, and has accomplished many things which years ago were considered impossible, and there is every reason to believe that it can reach the desired standard under the new bill, and be ready for any service at all times.

A valuable feature of the new law is the provision for a board of five militia officers, to consult with the General Staff of the Army on matters of importance to the National Guard, and prepare regulations for its government.—*U.S. Army and Navy Journal.*

NAVAL AND MILITARY CALENDAR.

JUNE, 1908.

1st (M). H.M.S. *Dominion* from Channel Fleet paid off at Chatham.
" " H.M. the King presented new Colours to the 2nd Battalion Grenadier Guards.
2nd (T). H.M.S. *Dominion* recommissioned at Chatham for further service in the Channel Fleet.
" " H.M.S. *Ocean* commissioned at Chatham for service in Mediterranean.
3rd (W). H.M.S. *Cornwallis* paid off at Devonport from Atlantic Fleet.
4th (Th). H.M.S. *Cornwallis* recommissioned at Devonport for a further term of service in Atlantic Fleet.
25th (Th). H.M.S. *Agamemnon* commissioned at Sheerness for service in Nore Division of Home Fleet.

FOREIGN PERIODICALS.

NAVAL.

ARGENTINE REPUBLIC.—*Boletín del Centro Naval.* Buenos Aires: April, 1908.—"The Boilers of the French Battle-ships." "An Aero-Maritime Voyage." "The Influence of Machinery on the Armament of Modern Ships." "Torpedo *Matériel*: New Patent." "Automatic Explosion Valve (Hopkinson System)." "Artillery Lessons from the Russo-Japanese Naval War." "The Thermo-tank Ventilating Apparatus on Board Modern Ships."

AUSTRIA-HUNGARY.—*Mittheilungen aus dem Gebiete des Seewesens.* No. 7. Pola: July, 1908.—"*Précis* of the Annual Report on the U.S. Navy for 1907." "Closer Action!" "The Court-Martial on the Surrender of the Russian Destroyer *Bedovi*." "The Italian Naval Estimates for 1908-09." "The "Germania-built" Submarines *Karp*, *Kambala*, and *Karasj* for the Russian Navy." "The Construction of Submarine Flotillas in France." "The Cruiser Problem."

BRAZIL.—*Revista Maritima Brazileira.* Rio de Janeiro: March, 1908.—"Submarines and Submersibles." "A New Motor for Ships." "Trials of Machine Guns." "Artillery *Matériel*." "Evolution and Tactics of

Artillery, and the Work of Disembarkation" (*continued*). "Two New Types of Submarines." "Practical School of Gunnery" (*continued*).

CHILI.—*Revista de Marina.* Valparaiso: April, 1908.—"The Naval Academy." "Protection of Condenser Tubes." "The New Peruvian Cruisers." "Fortifications: Indirect Fire upon Valparaiso" (*continued*). "Causes which may Produce a "Back-Flash" on Guns being Fired." "Brief View on Gun-Layers." "The Refrigerating of Magazines." "Prize Firings." "Admiral Nebogatoff's Defence" (*concluded*).

FRANCE.—*Revue Maritime.* Paris: April, 1908.—"The Administration of the Fleet and the Naval *Intendance*." "Statistics of Shipwrecks and other Mishaps at Sea for the Year, 1906." "A Mixed or One-Gun Armament." "The Importance of Speed in Tactics and Strategy." "Speed in the Construction of Battle-ships." "Battle at Short Ranges."

La Marine Française. Paris: June, 1908.—"The English Alliance and National Defence." "The Waste in the Navy." "Questions of National Defence." "The Re-purchase of the Western Railway and the Mercantile Marine." "Sketch of a Programme of Naval Reforms." "False Statistics." "Note on the Laying Down of New Battle-ships in 1909." "Reply of England to the German *Dreadnoughts*" (*concluded*). "The Administrative Reorganisation of the National Factories."

Le Yacht. Paris: 6th June, 1908.—"The Uniforms of the Navy." "Yachting Notes." "The New Armoured Cruiser *Jules Michelet*." 13th June.—"The Employment of Submarine Mines in Future Naval Wars." "Yachting Notes." "The Presidential Decision of the 30th May." "Will there not be any Grand Manœuvres?" "The U.S. Battle-ships *Mississippi* and *Idaho*." 20th June.—"The Naval Estimates for 1909." "Yachting Notes." "The Administrative Reform of the Navy." "The English Armoured Cruiser *Indomitable*." 27th June.—"The Trials of the New Submarines." "Yachting Notes." "The U.S. First-class Battle-ship *Michigan*." "The Torpedo-boat Flotilla Stations."

Le Moniteur de la Flotte. Paris: 6th June, 1908.—"Attention!" "Practice at the Proving Ground and Practice at Sea." "The Wireless Telegraphy *Personnel*." "The Messing of Officers in the Flotillas." 13th June.—"The Evolution of the Submarine." "The Administrative *Personnel*." "The Promotion of Officers." 20th June.—"The Administrative Organisation of the Navy." "The Naval Estimates for 1909." 27th June.—"In Favour of Submersibles." "Naval Education." "The Navy in Parliament."

La Vie Maritime. Paris: 10th June, 1908.—"The Preparation for Battle." "The Voyage of the President of the Republic." "The Last Promotions to Admiral." "The Sea Service before the Council of State." "The Naval Estimates for 1909." "The Projectiles for Naval Guns." 25th June.—"Armoured Cruisers." "The Arsenal at Sidi-Abdallah." "The New Destroyer *Coutelas*." "The Boilers of the *Danton*."

GERMANY.—*Marine Rundschau.* Berlin: July, 1908.—"Frontispiece: The U.S. Scout *Chester*." "The Adaptability of the Balloon and Motor Air-ship for the Navy." "The Historic Roll of Sea-fortresses and Naval *Points d'Appui*, with Special Regard to the Naval Wars from the 17th to the 19th Centuries." "Meter or Fathom?" "Nelson's Signal at the Battle of Trafalgar."

ITALY.—*Rivista Marittima.* Rome: May, 1908.—"The Battle Flag presented to the Torpedo-Boat Destroyer *Granatiere*." "Maritime Conventions regarding the Protection of the Merchant Fleet." "Gun Practice in the British Navy." "The Red Cross, the Geneva, and the Hague Conventions with regard to Naval War and Hospital-Ships." *Supplement.* —"The Budgets of Foreign Navies during the Past Four Years."

PORTUGAL.—*Revista Portugueza, Colonial e Maritima.* Lisbon: June, 1908.—"The Cultivation of Cocoa in the Islands of San Thomé and Principe." "Lorenzo Marques." "Genealogical and Biographical *Data* of some Fayal Families" (*continued*). "The Colonial Movement."

Annaes do Club Militar Naval. Lisbon: May, 1908.—"Wireless Telegraphy." "Launching Trials of Whiteheads, in 1906, in the Bay of Cezimbra" (*continued*). "Centenary Commemoration of the War in the Peninsula." "Progress in Naval Artillery Firing in the Last Ten Years." "The *Matsushima* Catastrophe." "The Hurricane of the 13th September, 1907, at Macao."

SPAIN.—*Revista General de Marina.* Madrid: June, 1908.—"Influence of the Rotation of the Earth on the Great Trajectories of Projectiles." "The International Naval Exhibition at Bruges." "Contracts for Work in the Fleet" (*continued*). "The Naval Powers in 1908" (*concluded*). "The Pressure of Explosives." "Powders and Explosives Manufactured at the Arsenal of Granada." "The Conclusion of the Naval Combat." "A Notable Invention."

MILITARY.

ARGENTINE REPUBLIC.—*Revista Militar.* Buenos Aires: April, 1908.—"Experiments and Calculations for Firing Tables." "Independent Cavalry Division" (*continued*). "Principles of Rational Instruction for Artillery." "Some Lessons from the Sad Experience of the Russo-Japanese War."

AUSTRIA-HUNGARY.—*Danzer's Armee-Zeitung.* Vienna: 4th June, 1908.—"The Homage of the Army and the Kaiser's Thanks." "The Bosnian Irredenta." "The Anti-Duelling League in Buda-Pesth." "Majors' Examinations in the Staff of the Artillery." "Military and Political Intelligence from Turkey." 11th June.—"Italy's Friendship." "Monte Berico, the 10th June, 1848." "The Weaknesses of our Navy."

"Military and Political Intelligence from Turkey" (*continued*). 18th June.—"New Regulations Regarding the Right of Complaint." "The Weaknesses of our Navy" (*continued*). "Military and Political Intelligence from Turkey" (*continued*). 25th June.—"Semi-official and Official Military Publications." "Look out, Vienna!" "The Weaknesses of our Navy" (*concluded*). "Military and Political Intelligence from Turkey" (*continued*). "General Pédoza on the Spirit of the French Army."

Streffleurs Militärische Zeitschrift. Vienna: June, 1908.—"Defence of the Präwald Position in 1809." "Two Short Studies of Regulations." "The Independent Line of Sight of Barrel-Recoiling Field-Guns." "Halting Places for the Carrying out of Field Fortifications by Infantry." "Machine Gun Systems." "The Navy of Great Britain." "The English Punitive Expedition against the Zakka Khels in February, 1908." "Intelligence of Army Schools." "Intelligence of Foreign Armies." "Naval Intelligence."

Mittheilungen über Gegenstände des Artillerie- und Genie-Wesens. Vienna: June, 1908.—"On Shooting at Objects in Large Angles of the Ground." "Directions for Troops for Discovering and Destroying Hostile Fugasses and Mines." "On the Dobner Fish-bellied Rail." "Modern Schneider Field Guns at Creusot and at Havre."

Kavalleristische Monatschefte. Vienna: June, 1908.—"Archduke Ferdinand's Ride from Ulm to Eger, from the 14th to the 22nd October, 1805." "Sins of Omission." "New Revision of the German Riding Instructions." "Galop!" "Horse Artillery and Light Field-Howitzers." "Prussian and Austrian Cavalry in the Wars of Frederick the Great." "On Knowledge and Instruction." "From the New English Cavalry Drill Regulations." "French Opinions on the Employment of Cavalry in Battle." "Tactical Exercises for Cavalry Officers."

BELGIUM.—*Bulletin de la Presse et de la Bibliographie Militaires.* Brussels: 15th June, 1908.—"German Field Artillery Gunnery Instructions of the 15th May, 1907" (*concluded*). "The French War Budget for 1908." "Present State of Aeronautics." 30th June.—"The French War Budget for 1908" (*continued*). "Foreign Military Intelligence."

Revue de l'Armée Belge. Liége. May-June, 1908.—Has not been received.

CHILI.—*Memorial del Estado Mayor del Ejército de Chile.* Santiago de Chile: April, 1908.—Has not yet been received.

FRANCE.—*Revue du Genie Militaire.* Paris: June, 1908.—"Study of the Military Establishments Formed in China by Foreigners, 1900-07" (*continued*). "Study of Instruction in Field Service in the Engineers Company" (*concluded*).

Journal des Sciences Militaires. Paris: 1st June, 1908.—"Evolution in the Recruiting of the Army" (*continued*). "To Assist You in the Command of Your Company" (*concluded*). "Field Artillery Teams." "Confidence." "Considerations on the Russo-Japanese War" (*continued*).

15th June.—"An Episode of the Battle of Beaumont, 30th August, 1870." "The French Officer." "Artillery in Action." "Evolution in the Recruiting of the Army" (*continued*). "The French War Budget for 1908" (*concluded*).

Revue de Cavalerie. Paris: May, 1908.—"Cavalry in Reconnaissance and in Establishing Touch with the Enemy." "Recollections of a Cavalry Captain, 1851-1881" (*continued*). "Programmes and Reports of Practical Cadre Exercises" (*continued*). "Army Horses under the Revolution and the Empire" (*continued*). "About the Charger Championship." "Foreign Intelligence."

Le Spectateur Militaire. Paris: 1st June, 1908.—"Cavalry, as Regards the Cadres Regulations." "The Anglo-Egyptian Army." "Psychological Study of Troops and of the Command" (*continued*). "German Infantry Drill Regulations of the 26th May, 1906" (*continued*). 15th June.—"The Q.F. Gun." "Connection by Arm Signals between Small Infantry Units." "Psychological Study of Troops and of the Command" (*continued*). "The Anglo-Egyptian Army." "German Infantry Drill Regulations of the 26th May, 1906" (*continued*).

Revue Militaire des Armées Etrangères. Paris: June, 1908.—"Military Heavy Motor Traction in Germany." "Military Reform in Belgium." "The New Swiss Infantry Drill Regulations."

La Revue d'Infanterie. Paris: June, 1908.—"Changes to be Introduced into Infantry Tactics, according to the Reports of Army Corps Commanders of the IInd Manchurian Army." "Contribution to Infantry Battle Tactics" (*continued*). "Austro-Hungarian Drill Regulations for Infantry Machine Gun Sections." "Some Lessons of the Russo-Japanese War, Applied to the Defence of Places." "A Visit to the Army Museum." "Foreign Military Intelligence."

Revue Militaire Générale. Paris: June, 1908.—"Marginal Notes on the Battle of Rezonville." "Study of the *Rôle* of Engineers in the Field." "Tsu-shima." "Essay on the Combination of Artillery and Infantry." "Study of the Campaign of Asia Minor." "Foreign Military Intelligence."

Revue d'Artillerie. Paris: May, 1908.—"Note on the Maximum Useful Weight which may be Raised by Aeroplanes." "Report on the Gunnery Practice Carried out by the 19th Artillery Brigade in 1906" (*continued*). "Penetration of Bullets into Average Resisting Substances such as Wood." "Russian Artillery Emergency Shields in Manchuria."

Revue du Service de l'Intendance Militaire. Paris: April, 1908.—"Historical Study of the *Personnels* of Military Administration." "The Russian Commissariat Service in Manchuria." "Working of the Military Slaughter Houses at Toul."

Revue d'Histoire. Paris: June, 1908.—"The Campaign of Marshal Saxe in Flanders in July, 1745." "The Manœuvre of Valney." "The Services in Rear of the Grand Army in 1806-07" (*continued*). "A Prussian Military Mission to Morocco in 1860." "The War of 1870-71" (*continued*).

GERMANY.—*Militär-Wochenblatt.* Berlin: 2nd June, 1908.—"The Life of Two Regiments of the Royal Saxon Army for the Last 200 Years."

"France's Undertakings in Morocco" (*continued*). "A New Book on Permanent Fortification." 4th June.—"Interchange of Signals and Combination of Infantry and Artillery in Battle." "Shooting of Infantry from Concealed Positions." "Intelligence of the Austro-Hungarian Forces." 6th June.—"On the 100th Year's Jubilee of the Grenadier Guards Regiment, and the Colberg Grenadier Regiment." "A Memorandum on the 100th Year's Jubilee of the Grenadier Guards Regiment." "The Offensive Spirit in our Recent Field Service Regulations." 11th June.—"A Hundred Years Ago: Olmütz and Dornstadtl." "Castel Sant'Angelo at Rome." "Intelligence from the French Army." "The Netherland Forces." 13th June.—"Fighting Covered Artillery." "A Hundred Years Ago" (*continued*). "The Present Russian Recruiting System." 16th June.—"Once More the Boer War." "A Hundred Years Ago" (*continued*). "The Execution of Fire by Large Artillery Masses and the Panorama-Sight." "A Decree Regarding Objects of Training in Switzerland." 18th June.—"The Efficiency of Veterinary Officers in Long Distance Rides." "Intelligence from the French Field Artillery." "A Decree Regarding Objects of Training in Switzerland" (*concluded*). "Military Requirements in Italy." 20th June.—"A Hundred Years Ago: Crefeld." "Tactics." "Re-organisation of the United States Militia." 23rd June.—"A Hundred Years Ago: Crefeld" (*continued*). "The New Field Service Regulations on Siege Warfare." "An Automatic Target." 25th June.—"Prussian Colours and Standards." "The First Aid to Wounded Officers and Men of Various Nations." "Norwegian National Defence." "Tactical Lessons from the Russo-Japanese War in the Light of our Latest Regulations" (*continued*). "Cyclists." "The Reconnoitring Squadron." "Provisioning an Army of a Million Men." 30th June.—"Tactical Lessons from the Russo-Japanese War in the Light of our Latest Regulations" (*continued*). "Care of the Wounded in Future Wars." "Cyclists" (*concluded*). "A New Chief of the Italian General Staff."

Internationale Revue über die gesamten Armeen und Flotten. Dresden: June, 1908.—"Military and Naval Intelligence from Austria-Hungary, Belgium, China, France, Germany, Great Britain, Holland, Italy, Japan, Russia, Switzerland, Turkey, and the United States." *Supplement 98.*—"Fortifications in the Balkan States." *French Supplement 111.*—"Firing at Dirigible Balloons." "Cavalry Studies: Strategical and Tactical." "Some Remarks on Modern Coast and Naval Guns." "The Teaching of Agriculture in Various Armies." "The New German Field Service Regulations." "The Teachings of Recent Wars."

Jahrbücher für die deutsche Armee und Marine. Berlin: June, 1908.—"On the Machine Gun Question" (*concluded*). "Three New Infantry Regulations: Japan, Belgium, and Switzerland." "How did the Reduction in the Number of Guns for our Field Batteries Arise and Develop?" "The Remount of the German Army in 1907." "From Wavre to Belle-Alliance" (*concluded*).

Artilleristische Monatschefte. Berlin: June, 1908.—"Shooting at Dirigible Balloons." "Artillery Range-Finder." "Our New Field Gun." "The Conversion of Old Guns into those with Barrel-Recoil." "The Armament of Field Artillery with Carbines." "Pack Artillery to

Accompany the Infantry Attack." "The German and French Arrangement for Gun-Laying with Field Guns."

Neue Militärische Blätter. Berlin: May, 1908. No. 20.—"Nine Years in the Russian Service under the Emperor Alexander III." "Employment of Motor-driven Balloons in War." "The English Expedition against the Zakka Khels in North-West India." "Militarism in France." "Military Intelligence." No. 21.—"Is a Shortening of the Two Years' Period of Military Service Possible?" "Employment of Motor-driven Balloons in War" (*continued*). "Nine Years in the Russian Service under the Emperor Alexander III." (*concluded*). "Large and Small Garrisons." "The War-Blaze on the Hindu Kush." "Military Intelligence."

June, 1908. No. 22.—"King Frederick III.'s (Brandenburg) 8th Guards Regiment." "The Afridis on the North-West Frontier of India." "Employment of Motor-driven Balloons in War" (*continued*). "Political Self-deception." "Military Intelligence." No. 23.—"Re-organisation of the Chinese Army." "Means for Awakening the Power of Judgment, Self-confidence, and Audacity of Young Soldiers." "Intelligence Service in Peace." "Military Intelligence."

ITALY.—*Rivista di Artiglieria e di Genio.* Rome: April, 1908.—"Some Further Considerations on Ranging with Siege Artillery." "Reforms in the Engineer Service." "Utilisation of the 10-inch Bronze Guns Discarded by the Italian Navy for the Armament of Coast Fortresses." "A Micro-Telephonic Apparatus for Field Service."

Rivista Militare Italiana. Rome: 16th May, 1908.—"The Revolutionary Propaganda and the Education of the Troops" (*concluded*). "Classical Polemography" (*concluded*). "Colonial Expansion and Cultivation." "Some Considerations on Military Manœuvres." "The Tactical Problem." "The Historical Origins of the Administration of our Army Corps" (*concluded*). "A Plea for Justice." "On the Origins of our Alpine Troops." "The Soldier's Journal." "A Prejudice as to the Employment of the *Bersaglieri*." "The Use of the Light Sapper Tools." "An Institution for a National Education for Soldiers' Sons and Orphans."

PORTUGAL.—*Revista de Engenheria Militar.* Lisbon: May, 1908.—"The Centenary Commemoration of the War in the Peninsula." "Harmonic Synthesis of the Tides" (*continued*). "Dirigible Balloons of the Present Day and Aerostatic Field Parks" (*concluded*). "Some Projects and Works Carried out in the Mozambique Province during the Last Nine Years" (*continued*).

Revista de Infanteria. Lisbon: June, 1908.—"In South Africa: The 1907 Campaign." "A Nation in Arms." "The Food of the Soldier on Foreign Service." "A Little History." "An Important Invention for Machine Guns."

Revista Militar. Lisbon: April, 1908.—"Centenary Commemoration of the War in the Peninsula" (*continued*). "Kitchens on Wheels." "The National Defence." "Remounts in Portugal." "Military Panoramic Drawing." "The Russo-Japanese War" (*continued*).

RUSSIA.—*Voïennyï Sbórnik.* St. Petersburg: May, 1908.—"The Russo-Swedish War of 1808-09" (*continued*). "The Aland Expedition in 1808." "The Manzovsk War" (*continued*). "Estimate of the Inkou Raid." "History of the Finnish Troops." "Infantry Organisation." "Extract from the Diary of a Regimental Commander." "The Field Artillery Fight according to the German Regulations" (*concluded*). "Fortification of a Field Position." "The Amur Railway." "Small Wars" (*concluded*). "German Military Expenditure in 1908-09."

June, 1908.—Has not been received.

SPAIN.—*Memorial de Ingeniéros del Ejército.* Madrid: May, 1908.—"Historical *Resumé* of the Organisation and Services of the Corps of Engineers during the War of Independence."

Revista de Caballería. Madrid: June, 1908.—"A Memorandum on the Special Firing Course." "Organisation and Special Duties of the Spahis in Algeria." "Marches of Mounted Troops" (*continued*). "A Study on the Employment of Cavalry in Grand Masses in Front of Armies and their Various Duties" (*continued*). "The Cattle Show at Seville and the Annual Fair." "Notes on Remounts and Algerian Haras." "Echelons" (*continued*).

Revista Técnica de Infantería y Caballería. Madrid: 1st June, 1908.—"The Sieges of Saragossa" (*continued*). "Courts of Honour" (*continued*). "Relations between Armament and Tactics" (*continued*). "A Study of the Casualties during the Russo-Japanese War, 1904-05, and a Comparison with those of the Campaign of 1870-1871" (*continued*). "The Tactical Employment of the Machine Gun." "The Religious Confraternities and Mixed Municipalities in Algeria." "Military Museums." 15th June.—"The Sieges of Saragossa" (*concluded*). "A Study of the Casualties during the Russo-Japanese War, 1904-05, and a Comparison with those of the Campaign of 1870-1871" (*concluded*). "The Tactical Employment of the Machine Gun" (*continued*). "Some Classes of War."

Revista Científico y Bibliotéca Militar. Barcelona: 10th June, 1908.—"Modern Method of Instruction." "The Work of France on the Algerian Frontier." "The Attack and the "Crisis in Battle."" "Protection for Infantry in Permanent Works." "New Regulation for Russian Officers' Servants." 25th June.—"The Army Museum." "The Encampment of "Cabo del Agua."" "The Work of France on the Algerian Frontier" (*continued*). "New Ideas." "An Armoured Gun for use against Balloons." "Lessons of Hygiene in the English Army."

SWITZERLAND.—*Revue Militaire Suisse.* Lausanne: June, 1908.—"The New English Military Organisation." "The Swiss Infantry Drill Regulations." "Once more the Q.F. Gun." "Foreign Military Intelligence."

UNITED STATES.—*Army and Navy Life.* New York: June, 1908.—"West Point Light Battery." "Increase of Pay." "Practical Work." "The Church on National Defence." "Camp Life at the United States Military Academy." "A Diplomatic Episode." "A Regular Army Reserve." "Berlin Letter." "British Empire Notes." "The States' Forces." "The Bluejacket."

NOTICES OF BOOKS.

Notes for the Tactical Fitness Examination. By Major A. T. Moore, R.E. London: Hugh Rees, Ltd. 1908.

This is a second revised edtion of an already tolerably well-known and generally appreciated work, based on all the most recent regulations governing the examination, and on the latest amendments to the ordinary text-books. The contents is very clearly set out, and the author is to be commended on the advice which he gives to students in regard to the limiting their reading to *Combined Training* and the *Training Manuals* of the three arms. The examination hints are especially good—more particularly the second one, which reads, "remember that Tact is four-sevenths of Tactics, and do not argue with the examiners." How many a failure has resulted from the non-observance of this elementary but golden rule! The tactical hints, too, are most useful, and nothing appears to be omitted which can assist the student, while Major Moore's remarks on the writing of appreciations and orders are exceptionally sound and particularly clear. There are two good maps, illustrating sample schemes, and the whole of this small book is well devised and arranged so as best to assist officers who are called upon, at what to many is the crisis of their service, to pass an examination in that of which some of them have had but small experience, under circumstances which do not always admit of their doing themselves full justice. A knowledge of Major Moore's "Notes" will deprive the examination of many of its worst terrors, while if the system of conducting it, as followed in the Eastern Command, were more generally carried out, the actual value of the examination would be enhanced, and its present limitations as a mere test would be greatly enlarged.

PRINCIPAL ADDITIONS TO LIBRARY DURING JUNE, 1908.

Militär-Strafvollstreckungs-Vorschrift. Erster Theil. Crown 8vo. 1s. 6d. (E. S. Mittler & Sohn.) Berlin, 1908.

The Historical Records of the Eleventh Hussars, Prince Albert's Own. By Captain G. T. Williams. Demy 4to. 42s. (George Newnes, Ltd.) London, 1908.

Statistical and General Report of the Army Veterinary Service for 1906. 8vo. (Presented.) (Harrison & Sons.) London, 1908.

The Cradle of the Deep: An Account of a Voyage to the West Indies. By Sir FREDERICK TREVES. 8vo. 12s. (Smith, Elder & Co.) London, 1908.

The North-West Passage. The "Gjöa" Expedition, 1903-1907. By R. AMUNDSEN. 2 Vols. 8vo. 31s. 6d. (Archibald Constable & Co., Ltd.) London, 1908.

From Pekin to Sikkim, through the Ordos, the Gobi Desert, and Tibet. By Count DE LESDAIN. 8vo. 21s. (John Murray.) London, 1908.

Vers Sadowa. By Chef de Bataillon J. DUVAL. 8vo. (Berger-Levrault & Cie.) Paris, 1907.

The Imperial Gazetteer of India. Vol. II. 8vo. 6s. (Presented.) (The Clarendon Press.) Oxford, 1908.

Gwalior, 1905. By J. W. D. JOHNSTONE. 8vo. (Presented.) (John & Edward Bumpas, Ltd.) London, n.d.

La Guerre Russo-Japonaise: Enseignements Tactiques et Stratégiques. Traduit de l'Allemand par le Lieutenant C. Olivari. By Major LŒFFLER. 8vo. Paris, 1907.

History of the Reign of Philip the Second, King of Spain. By W. H. PRESCOTT. New and Revised Edition. 8vo. London, 1894.

History of the Reign of Ferdinand and Isabella the Catholic. By W. H. PRESCOTT. New and Revised Edition. 8vo. London, 1901.

The History of the Reign of the Emperor Charles the Fifth, with an Account of the Emperor's Life after His Abdication. By W. H. PRESCOTT and W. ROBERTSON. New Edition. 8vo. London, 1902.

Our Regiments in South Africa, 1899-1902: Their Record, Based on the Despatches. By JOHN STIRLING. 8vo. 12s. 6d. (William Blackwood & Sons.) Edinburgh; 1903.

RECENT PUBLICATIONS OF MILITARY INTEREST.

COMPILED BY THE GENERAL STAFF, WAR OFFICE.

JULY, 1908. PUBLISHED QUARTERLY.

Communicated by the General Staff and reprinted by permission of the Controller of His Majesty's Stationery Office.

CONTENTS.

PAGE.

Part I. Books 1003

PREFATORY NOTE.

This Pamphlet will be issued quarterly, in April, July, October and January. Its purpose is to draw the attention of Officers to British and Foreign publications of Military interest which are likely to assist them in their professional work. Copies of the pamphlet will be distributed to the Headquarters of Commands, Educational Establishments, Units and Reference Libraries.

PART I.

BOOKS.

NOTE.—1. *When the price is not given in Part I., it is not known.*
2. *In Part I., books whose titles are given in foreign languages, as well as in English, are published in those languages, and are not translated.*

HISTORICAL.

The Truth about Port Arthur. By E. K. Nojine. Translated and edited by Capt. A. B. Lindsay and Major E. D. Swinton. 395 pp. 8vo. London, 1908. Murray. 15/-.

This work gives a vivid picture of the situation inside the fortress, from the opening of the war until the capitulation, including the fighting at Nan Shan and in the mountains between Dalny and Port Arthur. The author is a civilian, and during the siege was correspondent of the *Novy Kry*, the Port Arthur newspaper, but although he has been at great pains to collect information, he is such a hot partisan of Gen. Smirnoff, and so violently antagonistic to Gen. Stessel, that his statements must be accepted with caution. He left Port Arthur in a destroyer on 15th November, so that the facts were not altogether gathered by personal observation. Nevertheless, documents are quoted to an extent which makes it impossible to doubt the correctness of most of the accusations levelled at Gen. Stessel, and at the trial of that officer the indictment was almost a repetition of the charges contained in this book.

From a military point of view the work will perhaps be found a little disappointing, but as a graphic narrative by eye-witnesses of the principal events which led to the capitulation, it will be found of absorbing interest.

An excellent map of the defences is given, and there are several good illustrations reproduced from photographs of the defence works.

The Russo-Japanese War (La Guerre Russo-Japonaise). By Col. E. Bujac. 487 pp., 21 maps and sketches in text. 8vo. Paris, 1908. Lavauzelle. 6/3.

This work is the sixth of a series written by the author and entitled, "Précis de quelques guerres contemporaines."

It is divided into five parts.

Part I. opens with a retrospect of the political situation, from the treaty of Shimonoseki to the outbreak of the Russo-Japanese War, and contains a description of the theatre of war and of the contending armies.

Part II. comprises a history of the struggle up to the establishment of army headquarters in Manchuria, under Marshal Oyama. It treats of the naval operations off Korea, round Port Arthur and in the sea of Japan. The narrative of the campaign on land embraces the battles of the Yalu and Nanshan.

In Part III. the author describes Oku's and Kuroki's advance towards Liao-yang, the battles of Liao-yang, the Sha-ho, and Hei-ku-tai, the siege operations up to the capture of the 203-metre height inclusive, Mishchenko's raid on Ying-kou and the "dashes" southward attempted by the same general in February and May, 1905, as well as the Japanese cavalry raids against the Russian communications.

Part IV. contains an account of the fall of Port Arthur, the battles of Mukden and Tsu-shima, and the expedition to Saghalien.

Part V. gives a history of the peace negotiations and the events immediately succeeding the cessation of hostilities. The renewal of the Anglo-Japanese Alliance is also noticed and discussed.

The details given in Part I. concerning the Trans-Siberian Railway are of interest, and a useful table of distances between different ponts on the Russian and Chinese railway systems is given. Data are furnished concerning the traffic which passed over these systems at different periods, and the *personnel* and *matériel* carried.

Next follows a concise strategical summary of the war—an arrangement whereby the student is enabled to grasp the general course of the campaign before proceeding to study its details.

The measures taken to ensure China's neutrality are next discussed, as are also international law questions relating to contraband of war, right of search, anchoring in neutral waters, floating mines, disposal of wounded in naval warfare, and wireless telegraphy.

A list of Chinese prefixes and suffixes, descriptive of administrative divisions and topographical features is given. The *précis* of the successive steps whereby demobilisation was accomplished, shows the difficulties attending the process. The criticisms of the three arms on the Russian side on pp. 55-58 are too superficial to be of value; in discussing the infantry, the author quotes largely from a lecture by Captain Soloviev published in Vol. L., J.U.S.I. The gist of the above is the important part played by the bayonet attack, and the need for more officers.

This part of the book contains several errors. The nine brigades of East Siberian Rifles, alluded to on page 33, contain *four regiments of two battalions*, and not *two*

battalions as stated. The raising of third battalions for these rifle regiments, referred to on page 35, was *not* part of the mobilisation. The figure 95,000, on page 36, is considerably underestimated. On page 59 it is stated that Manchuria and the adjoining regions were the *only* base of provisions, whereas in reality nearly all flour, vegetables, condiments and oats were at first brought from Europe.

On the other hand, the details given about the Japanese forces which even include the names of and changes amongst chief staff officers and regimental commanders are wonderfully accurate.

The statement on page 81 that the 1st Reserve Brigade was sent from the IInd to the IIIrd Army at the end of August, 1904, is, however, an error. This brigade served with the IIIrd Army from the beginning of July, 1904. From data supplied, the author reckons the total loss of the Russians during the war at 280,000. Admissions to Russian hospitals were 18·8 per cent., and the proportion of killed to wounded was 1—3·5.

In discussing Japanese infantry tactics the author remarks on the following:—

(*a*) The large number of rifles employed at the outset in order to obtain superiority of fire, resulting in an undue extension of front and premature using up of reserves.

(*b*) The practice of entrenching during the attack.

(*c*) The use of rushes which according to the author tended to be long in the Ist Army and short in the IInd and IVth Armies.

(*d*) All commanders—especially generals—keep their places, and great attention is paid to intercommunication, with happy results.

The general characteristics of Japanese tactics are said to be:—

Approach to hostile positions by night when possible.

Close co-operation of infantry and artillery. Energetic attack of selected points—often at night or dawn.

The details given on page 88 concerning infantry ammunition supply do not take account of the increased number of rounds carried during the later stages of the war.

Losses in horseflesh during the South African and Manchurian campaigns are compared, and also losses through disease in the Japan-China and Russo-Japanese wars respectively. Japan's total losses during the latter war are given as 450,000. Some statistics are given to show what heavy financial burdens the war imposed upon Japan.

In Part II. the difficulties of modern blockade, the employment of torpedoes and mines, and the action of war vessels against land defences are briefly discussed.

In criticising the battle of the Yalu, the author, after quoting from various military writers, gives the opinion that Sassulitch would have been well advised to retire without giving battle, but that having at the last moment decided to accept it, he adopted the worst methods of defence under the circumstances, viz.: the cordon system. Reconnoitring detachments should have been pushed well forward and different points along the river guarded by advanced posts—carefully interconnected—thus giving the main body time to manœuvre; the main body to attack the enemy whilst the latter was in the act of crossing.

The following points in the Russian disposition are criticised:—

1. Two complete regiments held back far behind the right.
2. The absence of reserves and cavalry on the left.
3. The absence of a general reserve and second position.
4. The orders for the occupation of the position.

Some interesting observations follow regarding the treatment of correspondents in this war and their position nowadays, the latest German regulations on this subject are quoted.

The description of Oku's movements between his disembarkation and the battle of Nanshan is meagre.

Regarding Nanshan the Russians are criticised for failing to keep large reserves at hand and omitting to make a counter-attack on the 4th Japanese Division. The absence of the Japanese naval force in Hand Bay is commented on, but is rightly attributed to the dread of mines.

Stakelberg is criticised for fighting at Telissu according to a preconceived plan, and for his tardy and piece-meal use of reserves. Contrary to some authorities the author considers that the Russian commander was well served by his cavalry.

In a discussion on the conduct of the campaign by the Japanese up to the eve of Liao-yang, their strategy is warmly defended against various critics whom the author quotes (*see* also comments on strategy, page 244).

Oyama's preliminary dispositions at Liao-yang are praised, but they "finally end in a commonplace frontal attack." The force for the frontal attack "Japanese left and centre" is pronounced as too strong, and the right (Kuroki), as too weak for its tactical task, the indispensable preliminary of its strategical *rôle*.

Kuropatkin's best plan, according to the author, would have been a vigorous offensive with the right wing, with a reserve behind his left to prepare for eventualities.

Pages 273-277 contain an excellent description of the Japanese infantry attack.

In the chapters dealing with Port Arthur full particulars are given as to the strength of the garrison, food and ammunition supplies, etc. Several opinions are quoted as to the surrender. The differences between Gen. Stessel and some of the higher commanders are referred to, but evidently the author was ignorant of much that has lately come to light, since Fock is referred to in a footnote as a "heroic figure." The statement that the Russians successfully countermined under Fort No. II. (page 312), is incorrect, and in the last paragraph on page 311, *19th* Regiment should read *13th* Regiment. On page 380, Gen. Samejima is erroneously stated to have been transferred from the command of the 7th to that of the 11th Division; he never commanded the former.

Of Port Arthur the author says that it only had a deceptive likeness to a fortress, that neither attack nor defence were up to modern standards, and that the instructiveness of the siege was consequently affected.

The defence is held to have used its reserves up prematurely in defending too extended a perimeter. The premature assaults of the Japanese are blamed, and attention is drawn to the inability of the Japanese artillery to perform the three-fold task of keeping down the adversary's artillery fire, sweeping the ground and opening up "storming avenues" for its infantry.

General v. Caemmerer's criticisms on Mukden are quoted, and extracts are given from other writers descriptive of Japanese attack formations (both by day and night) at this battle.

The book is not well edited, Chinese, Japanese, and Russian renderings of names are used indiscriminately, both in the text and on the maps, and different transliterations given of the same word where only one language is used.

On page 24, the 10th Division is described as the nucleus of the IIIrd instead of the IVth Army. The words "Army" and "Corps" are used indiscriminately in describing Japanese forces consisting of several divisions.

On page 80, "Jobihei," which includes the standing Army and its 1st Reserve, is erroneously translated as "armée active." On page 144, Sasaki's brigade is stated to include the 17th instead of the 47th Regiment.

In spite of these imperfections the book is a most valuable aid to the study of the latest great campaign, especially as a preliminary to the perusal of larger works.

Russo-Japanese War of 1904–05 (Русско-Японская война 1904–1905 года). By V. Cheremisov, Colonel of the General Staff, Instructor in Military History and Tactics at the Kiev War School. Vol. I, 297 pp. Vol. II, 40 maps. 8vo. Kiev, 1907. District Staff Press. 8/3.

The Russo-Japanese War was laid down as a subject of study in war schools for the years 1907-1908, and the author has compiled this book to assist him in his duties at Kiev. It is a clear and straightforward account of the events of the war, with short and generally impartial comments.

The chief cause of the Russian defeats is stated to have been the insufficient tactical training of the troops and general ignorance by all ranks of the art of war. "The Japanese fought with their training manuals in their hands. We cast ours aside long before the war, and dearly indeed did we pay for our attempt to make up for want of real knowledge by common sense and general experience. . . . . In the operations of the enemy, we perpetually discovered principles which seemed new to us, but they had long been known to the whole world, and had only been forgotten by us since we left school."

Further main factors of defeat were:—

1. The general failure to detail a separate general reserve and keep it fresh physically and morally until required for a decisive strategic object.
2. The want of active mutual support along the front of units. If one Russian unit gave way, the whole front fell back. If a Japanese unit retired, the remainder of their line increased their general pressure on the enemy so as to prevent him from following up the unit.
3. Feints were not carried out by bodies of troops sufficiently large and important to deceive the enemy.
4. Constant interference in the province of subordinate commanders caused the latter to lose all sense of responsibility, and to abandon all attempts at initiative.

   In 19 months of war there is only a single instance of initiative of the kind recommended in the training manuals—the movement of the Zaraisk Regiment on 26th August, to the village of Pa-shui-ho on the Japanese flank.
5. The continual re-grouping of units. Gen. von der Launitz's command to the north of Mukden, on 8th March, consisted of 51 battalions, 21½ squadrons, and 133 guns, which were drawn together from 3 armies, 11 corps, 16 divisions, and 43 regiments.
6. Blind adherence to the principle of the passive defensive.
7. Failure to appreciate the value of concealment and surprise.

With the Eastern Force from Liao-yang to the Yalu and back (Въ Восточномъ отрядѣ отъ Ляояна къ Тюренчену и обратно). By Capt. Svyechin, Russian General Staff. 260 pp. Warsaw, 1908. 3/6.

The author served as company commander, and subsequently as General Staff Officer with the 6th East Siberian Rifle Division, and gives his personal impressions of the Yalu campaign. Evidently an observant and energetic officer, he writes a thoroughly interesting and instructive book, which, it must be said, forms a very strong indictment of the Russian leading and tactics. The writer depicts the poor reconnaissance of the enemy and of positions, the general aimlessness and helplessness of the generals, the nervousness and mental strain of the troops, unnecessarily worried and deprived of their rest for nights together by their commanders. An idea appears to have been prevalent among the latter of creating a Plevna on the Yalu, and this although information had been received from Koreans to the effect that the Japanese Guard and other units, 30,000 men with 100 guns, stood upon the opposite bank. A graphic picture is given of the retreat; of the phantom Japanese cavalry which

haunted it for days, and caused several panics; of staffs shot at in mistake for this cavalry by the transport drivers, who had been armed with rifles; of the plundering of their own baggage by the troops; of the total collapse of the leading. In the later stages of the retirement on Liao-yang a rage for ill-judged reconnaissance of the enemy possessed certain leaders. The best officers and scouts were sent out by fifties at a time. Few returned to tell the tale, nearly all having been captured or shot by the Japanese outposts. The writer is no friend of reconnaissances in force and "offensive demonstrations." Based upon defective information and unsound tactical premises, either they resulted in blows in the air, causing endless fatigue and discouragement to the troops, or the enemy simply declined to be "drawn."

The Russo-Japanese War on Land. By Capt. F. R. Sedgwick, R.F.A. 2nd and revised edition. 171 pp., 7 sketch maps. 8vo. London, 1908. Forster, Groom. 3/6.

This revised edition is a great improvement on the original one, but it is still far from accurate as regards well-established facts, and by no means a clear account of the operations. The compiler, according to the short list of works consulted which he gives in the preface, and from internal evidence, has relied mainly on the works of Major Löffler, Col. Meunier, and the Military Correspondent of the *Times*, and has not utilised the valuable and authoritative material now available, such as the lectures given at the Russian Staff College, the reports of Major Freiherr von Tettau, the German Military Attaché with the Russians, and the numerous other first-hand narratives, and the compilations of Continental General Staffs which have been noticed in these pages.

The indifferent use of German, French, and Japanese, as well as the author's own, transliterations of the Manchurian place names (*e.g.*, a simple name like Ying-kou appears as Inkou, Yingkou, Yinkao), and the omission from the maps of many places referred to, make the story difficult to follow.

Prince Khilkov is referred to as Chikoff, von Clausewitz as Clausevits, and Lieut.-Gen. J. E. B. Stuart as Stewart.

History of the War in South Africa, 1899-1902. Compiled by the direction of His Majesty's Government. Vol. III. 560 pp., with maps in separate case. 4to. London, 1908. Hurst and Blackett. 17/6 to subscribers and 21/- to non-subscribers.

Vol. II. of this history was noticed in the JOURNAL for October, 1907, page 1302.

The present volume opens with an account of the rebellion in N.W. Cape Colony, and of the measures taken for its suppression between October, 1899, and July, 1900.

The remainder of the book deals with the whole of the operations from the reorganisation at Bloemfontein in March and April, 1900, till the departure of Lord Roberts from South Africa in November, 1900. It thus includes the advance of Lord Roberts to Pretoria, the operations in the Orange River Colony in May and June, 1900, the siege and defence of Mafeking, Plumer's operations in the north, the battle of Diamond Hill, Sir R. Buller's operations in Natal up to his junction with Lord Roberts, the surrender of Prinsloo, the advance to Middelburg, the pursuit and escape of De Wet, the advance to Komati Poort, and to Pilgrim's Rest, and the operations in Western and Eastern Transvaal and in the Orange River Colony at the end of 1900.

This volume, though not dealing with such important engagements and operations as its predecessors, certainly lacks nothing in the way of interest, and though, like its predecessors, it refrains from comment, adverse or otherwise, it is often possible to read between the lines and to see clearly who was in fault or the reverse, and for what reasons.

A vivid picture is given of the difficulties which beset Lord Roberts at Bloemfontein in March and April, 1900, and of the extraordinary difficulty of supplying, at a later stage, columns widely separated and operating in country, the topographical features of which differed so widely as they did in the Transvaal and the Orange River Colony.

All the operations are described with great clearness, and that this alone is no small achievement will be realised by all who took part in the scattered operations of the latter half of 1900.

By the aid of the excellent maps provided it is possible to follow the operations through every detail, and to realise, to a certain extent, the difficulties which surrounded the commanders, who, in many cases were pursuing a mobile and elusive enemy through a little-known country, while they themselves were to a great extent tied to roads and based on railways. The difficulties were those which regular troops operating against a guerilla enemy have always to surmount, and many historical instances could be adduced to show how other nations have had in other countries to contend with similar problems. If the reader turns to Professor Oman's Vol. III. of the Peninsular War, he will find many of the conditions repeated, though in many cases the task of the French generals was an easier one than that of our own in 1900.

On the whole this volume is thoroughly worthy of its theme, and should be read and digested by all officers.

Other Lost Opportunities (Autres Occasions Perdues). By Gen. Izzet Fuad, Turkish Minister at Madrid. 274 pp., 1 map, and 15 sketches. 8vo. Paris, 1908. Chapelot. 5/-.

This work forms a sequel to "Les Occasions Perdues," a study of the Russo-Turkish campaign of 1877-1878, by the same author, published in Paris, 1900, and is a critical study of the strategy of the campaign in Asia Minor in 1877-1878.

Much light has been thrown on the inner history of this campaign, on the Turkish side, by a recent publication, entitled, "Bachimiza Guélenler" ("Our Adventures"), and written in Turkish, by the late Mehemmed Arif Bey, private secretary to Gen. Mouktar Pasha, Commander-in-Chief of the Turkish forces in Asia Minor. Mehemmed Arif Bey's book is of peculiar value, owing to the fact that it was written in great part at Mouktar Pasha's dictation, and is not allowed to be sold in Turkey. General Izzet Fuad avails himself of this new historical material to analyse, not only the shortcomings of the Turks during the campaign, but also the faults committed by their adversaries.

The Defence of Parmain (La Défense de Parmain). By A.-D. Denise, former Mayor of Parmain. 220 pp. 8vo. Méru, 1906. J. Douce. 1/8.

An interesting story of a little-known episode of the war of 1870-71. Though the author may be suspected of erring on the side of partiality to his own countrymen, the account demonstrates that raw levies, when composed of patriotic and determined men, may check even the best regular troops for a short time; at the same time, however, it affords yet another proof of the inability of these untrained men to act on the offensive or to carry out any concerted action, and shows that their efforts however brave and heroic, are certain to end in defeat and disaster.

The 4th Battalion of the Militia of the Upper Rhine in 1870-71 (Guerre de 1870-71. Le 4ième Bataillon de la Mobile du Haut-Rhin). By M. Emile Glück, Serjeant-Major in the above corps. 230 pp., with a map and photos. 8vo. Mühlhausen, 1908. Meininger. 4/3.

M. Glück, an Alsatian from Mühlhausen, has given us a most interesting account, in the form of a diary, of his experiences as Sergeant-Major of his battalion during the war of 1870-71. He saw a good deal of fighting, and his remarks on the utility of militia are most instructive, especially for Englishmen.

He draws a vivid picture of the high degree of patriotism which animated the greater portion of the French territorial forces, after the destruction of the regular army. He then, however, proceeds to adduce numerous and striking examples to prove the hopeless nature of a struggle between improvised levies, however brave and patriotic, and well-trained regular troops. He points out the inability of the French levies to undertake any sustained offensive action, and shows the crushing effect of a reverse on their *moral*. He also lays stress on the impotence of the French Artillery, the training and instruction of which had been quite inadequate.

Königgrätz. By Lieut.-Col. H. M. E. Brunker. 112 pp. 8vo. Portsmouth, 1908. Holbrook. 3/6.

This small book is an epitome of the campaign, summarised from Bonnal's "Sadowa" and other authorities.

It is apparently compiled with a view to assisting officers in their examinations for promotion, and, as the author points out, should be taken rather as a guide to further reading on the subject than as a complete history.

The maps provided are not clear, and the difficulty of reading them is enhanced by many variations of spelling of names of places in the text.

The addition of a map of the country about Trautenau and Nachod would have been an improvement.

Military History for Examinations in 1908: Questions on the Königgrätz Campaign in 1866. By Leut.-Col. H. M. E. Brunker. 17 pp. 8vo. London, 1908. Forster, Groom. 1/-.

This pamphlet contains 50 questions on the campaign of 1866 in Bohemia, the first eight of which are the same as those set at the Staff College Entrance Examinations of August, 1897. The questions are searching and to the point, and would doubtless be of value to students of the campaign.

A History of the Civil War in the United States, 1861-5. By W. Birkbeck Wood, M.A., and Lieut.-Col. J. E. Edmonds, R.E. 549 pp., 13 maps, and 11 plans. 8vo. London, 1908. Methuen. 12/6.

This is a second edition of a book originally published in September, 1905, and is an endeavour to provide "within a reasonable compass an impartial account of the events of the four years of hostilities." Chapter XX., "Grant and Lee in Virginia. From the Wilderness to Cold Harbour," and portions of Chapter XXI., which contains an account of Major-Gen. Butler's operations in May and June, 1864, and of Chapter XXIV., "The Shenandoah Valley in 1864," will be found useful by officers preparing for the November promotion examination; but the volume will be specially of service to those who wish to obtain a general survey of the military operations before proceeding to the detailed study of a particular period.

Lincoln in the Telegraph Office. By David Homer Bates. 425 pp. 8vo. New York, 1907. The Century Co. 8/-.

The author was one of four who formed the nucleus of the U.S. Military Telegraph Corps as organised by Andrew Carnegie. In March, 1862, he was appointed manager of the office, and was engaged in continuous duty at the War Department from May, 1861, till after the close of the war, except for two weeks in June, 1864, when he was with Grant's Headquarters at City Point. The telegraph office was Lincoln's haven of "rest," especially after Stanton's appointment as War Secretary in January, 1862. It was the scene of many vitally important conferences. It was there that Lincoln received the news of the battle of the *Monitor* with the *Merrimac*, there that he spent the anxious days of the Second Bull Run, there that he wrote the first draft of the Emancipation Proclamation.

Probably the most interesting chapter of the book is that which deals with Grant's orders for the removal of Major-Gen. Thomas (Chap. xxiii.). Grant wrote three separate orders removing Thomas from the command of the Army of the Cumberland. The first as prepared in the Adjutant-General's office was dated the 9th December, 1864, and directed Thomas to turn over the command of his army to Schofield. This order was delayed by the Federal Government, and the author believes that Lincoln's judgment was the controlling factor. On the 13th December, Grant wrote the second order to be delivered to Thomas by Logan in person, who was instructed to take over the command. This order was never delivered, because Thomas fought and won the battle of Nashville before Logan reached the theatre of war. The third order was written on the night of 15th, Grant, impatient of further delay, had come to Washington, and after a conference with Lincoln, Stanton, and Halleck, decided to go himself to Nashville and drew up an order relieving Thomas of the command and substituting Schofield until his own arrival. This final order was placed in the hands of Eckert, chief of the War Department Telegraph Staff, for transmission. He, however, finding that telegraphic communication with Nashville had been resumed, decided on his own responsibility to withhold the order until he had received the latest information. At 11 p.m. came a telegram announcing Thomas's initial victory over Hood on that day. It is plain from the narrative that during the crisis Lincoln and Stanton supported Thomas, but Halleck had influenced Grant against that general by representing him to be a second McClellan. The position occupied by Eckert was unique. When he informed Stanton of what he had done, the Secretary of War replied, "You are my confidential assistant, and in my absence were empowered to act in all telegraphic matters as if you were the Secretary of War. The result shows you did right." Again in the preliminaries preceding the Hampton Roads Conference, Eckert was selected as the confidential agent of the Government with power, which was exercised, to overrule even Grant himself.

An interesting account is given in chap. xiii. of the deliberations, which led up to the despatch of reinforcements to Rosecrans after his defeat at Chickamauga. Halleck, when asked how long it would take to send *two* army corps from Virginia to Tennessee, estimated that it would take nearly three months. Eckert, in reply to Stanton's questions, declared that it could be done in sixty or even forty days. Ordered to submit a written report on the subject, Eckert found it possible to reduce his estimate to fifteen days. As a matter of fact, the movement was completed in eleven and a-half days, the distance covered being 1,233 miles, and the troops transported numbering 23,000.

Mr. Cameron, Lincoln's first Secretary for War, had been persuaded by McClellan to direct that all military telegrams received at Washington were to be delivered to the Commanding General. It was Stanton's refusal to adhere to his predecessor's practice that occasioned the ill-will manifested by McClellan towards the new Secretary. The famous despatch of the 28th June, 1862, in which McClellan accused Stanton of having done his best to sacrifice the Army of the Potomac, was not delivered in its entirety; the two offending paragraphs with which the telegram concluded, were deleted by the military supervisor of telegrams on his own responsibility. It was McClellan's official report which a year later made public the expunged lines.

Some interesting instances of Confederate cipher codes are included in this work, whilst it is claimed that the Confederates absolutely failed to decipher the messages sent from the Washington War Department.

Morgan's Cavalry. By Basil W. Duke. 441 pp., illustrations and maps. 8vo. New York and Washington, 1906. The Neal Publishing Co. 8/-.

Gen. Duke is eminently qualified to write the history of Morgan's cavalry. He was with that force from beginning to end:—first lieutenant of Morgan's company, lieutenant-colonel and colonel of Morgan's regiment, the 2nd Kentucky, commander of Morgan's First Brigade, and eventually his successor. He writes, he frankly admits, "as a southern man, once a Confederate soldier." But his narrative is fair and candid, though he lays no claim to "that sort of impartiality which is acquired at the expense of a total divestiture of natural feeling." That his hero was an almost unequalled partisan leader, will be admitted by the large majority. The author, indeed, counts him as without an equal, except for Forrest, among the Western cavalry commanders. But in making this claim he seems to be demanding too much. Wheeler proved himself, as the author eventually concedes, better qualified for the command of the cavalry of the army of the west than Morgan, so far as we can judge, would have been likely to be. For Morgan was undoubtedly at his best when operating on his own account, and independently of the main army. He was impatient of control and reluctant to subordinate his own aims to the requirements of the wider strategical policy, which the commander of a large army must formulate. Nor is it probable that the verdict of history will place him on a

level with Forrest. For that leader, whilst certainly Morgan's equal in partisan warfare, possessed a wider outlook and a more just appreciation of the relations of the part to the whole in the theatre of war. Morgan was far superior to the guerilla commander as typified in Mosby, but that he was more than a partisan leader, though one of the very best of his kind, cannot be conceded in spite of his historian's brilliant defence.

As a master of mounted infantry tactics he had no superior, and he perfected a system of tactics that was "as effective as it was novel." His strategy consisted in pressing forward by forced marches into the very heart of the selected field of operations, striking right and left as he advanced, never shirking an encounter where there was a chance of success, ever seeking to mystify and to impress his opponents with the sense of his ubiquity; but when his work was done and the retreat commenced, he spared no effort to avoid any collision with a hostile force, holding that the delay incurred afforded to the enemy their best chance of concentrating their scattered forces, and overwhelming him with superior numbers.

Born in 1825, Morgan volunteered for the Mexican war, and served as a first lieutenant in Humphrey Marshall's cavalry regiment. But, apart from that brief experience he had received no military training. "Totally ignorant of the art of war, as learned from the books and in the academies, an imitator in nothing, he was self-taught in all that he knew and did." His distinctive qualities were the exercise of much care and forethought in the formation of his plans, an unflinching resolution in their execution, a remarkable eye for country, and a fine courage combined with and controlled by a coolness of judgment which made him equal to any emergency.

Morgan's name will always be chiefly associated with the Ohio Raid in the summer of 1863. The object of this movement was to draw off from Bragg's front a considerable force, under Gen. Judah, which might otherwise have taken part in the Chickamauga campaign, and turned the scale in favour of the Federals. But Bragg had ordered Morgan not to cross the Ohio but to confine his operations to Kentucky, making Louisville his objective. This order Morgan deliberately disobeyed on the ground that he could not maintain himself sufficiently long in Kentucky to prevent Judah from taking part in Rosecrans' campaign. The raid had been most carefully mapped out in anticipation, and was daringly executed; and Morgan would have succeeded in re-crossing the Ohio with his whole force at the very point originally selected, had not a rise in the river, unparalleled for 20 years, enabled the Federals to send up transports and gun-boats, which intercepted his retreat.

It is claimed by the author that the raid, in spite of its disastrous termination, was completely successful in attaining the object for which it was originally undertaken, but even so the advantage was more than counterbalanced by Morgan's loss of prestige, of which he was himself painfully conscious. Escaping after four months' imprisonment from the Ohio Penitentiary, he was appointed to a command in South-west Virginia, and attempted a raid into Kentucky, in the hope of recovering his lost reputation. But this raid also terminated disastrously, and at the moment of his death at Greenville, on the 4th September, 1864, he was under charges for having undertaken it without orders. His last year was embittered by a sense of failure, and by the knowledge that he had forfeited the confidence of his Government. He found that the Secretary for War, Mr. Seddon, was turning just as ready an ear to the complaints of his subordinates, as Mr. Benjamin had done at the beginning of the war to the detriment of Stonewall Jackson.

Some have traced the cause of his downfall to his marriage in December, 1862, but the author gives no hint that this surmise had any justification in fact. Rather it is to be attributed to the loss of efficiency in his cavalry, due to the vicious policy of leaving the cavalry in the West to find their own supplies. More than one reverse was occasioned by lack of ammunition.

Himself a Kentuckian in all but the accident of birth, and with a force almost entirely recruited from that State, it was in Kentucky that his real work was done. The Louisville—Nashville railroad, on which the Federal commanders depended for their supplies, was continually the object of his raids, and his victory at Hartsrike, in which, with a loss of 125 men, he captured 1,834 prisoners and inflicted a loss of 261 killed and wounded, ranks as perhaps his most noteworthy achievement.

This book contains nothing to show that it is not a new work, but quotations from Duke's "History of Morgan's Cavalry," in Cist's "Army of the Cumberland" (published in 1898), suggest that it is a reproduction of an earlier work. The maps are hardly as helpful as they might have been made, and the addition of an index would have been a great boon to the reader.

Grant's Campaign in Virginia (The Wilderness Campaign). By Capt. Vaughan Sawyer. 197 pp. 8vo. London, 1908. Swan Sonnenschein. 5/-.

This is the eighth volume of the "Special Campaign Series." Opening with a short outline of the war up to the beginning of the special period under consideration, it contains a clear, concise, and impartial account of the operations in Virginia, from the date of Grant's appointment to command of all the armies of the Union (9th March, 1864), till shortly after the battle at Petersburg in June of the same year.

The book is accompanied by eight maps, which would have been more valuable had the names of all places mentioned in the text been included.

The Campaign in Virginia, May and June, 1864. By T. M. Maguire. 88 pp., 6 maps in black and white. 8vo. London, 1908. Clowes. 4/-.

This book consists chiefly of extracts from various works on the campaign in question. Officers are recommended to study the originals rather than the reproduction.

Memoirs of Field-Marshal Sir Henry W. Norman, G.C.B., etc. By Sir W. Lee-Warner, K.C.S.I. 319 pp., with portraits and maps. 8vo. London, 1908. Smith, Elder. 14/-.

In the first chapter of this history Sir W. Lee-Warner traces the early career of the late Field-Marshal, relating how he entered the Indian Army and joined the 1st Native Infantry, being shortly afterwards finally posted to the 31st Native Infantry (now the 2nd Queen's Own Rajput Light Infantry). Sir Henry Norman having become Adjutant of his regiment took part in the Sikh War, and was present at the battles of Chilianwala and Gujrat; of the former a detailed account is given, the want of a decisive result being ascribed in a large measure to the flight and panic of the cavalry on the right. After the Sikh War Norman acted as Brigade-Major of a punitive expedition sent in 1850 against the Afridis, and his conduct on this occasion earned for him the appointment as Brigade-Major at Peshawar.

After taking part in numerous frontier and other expeditions, Norman was finally appointed to the Bengal headquarter staff in May, 1856.

On the outbreak of the Mutiny, Norman was at Simla, but joined General Barnard's staff and acted as A.A.G. at Delhi. His account of the siege of Delhi is mostly taken from extracts from letters to his wife, and gives a vivid picture of the whole scene and operations. He seems to have been always cheery and sanguine, although the difficulties to be contended against were at times very great. Being on the staff all the time he saw the inside of things, and, therefore, his account is well worth reading, even though the reader may be familiar with the events.

After the taking of Delhi, Norman went with the Lucknow relieving column still as the representative of the Adjutant-General's staff.

The description of the relief of Lucknow is brief, chiefly owing to the fact that Norman could not send many letters to his wife owing to difficulties of communication. After Cawnpore, Norman, having had a few days' leave, joined Sir Colin Campbell for the Oudh Campaign, where he fulfilled the same duties as before.

He then acted as Adjutant-General throughout the operations which ended in the capture of Lucknow. He took part in the operations of 1858, and finally went home at the end of 1859. In September, 1860, he was appointed A.M.S. to the Duke of Cambridge, but in 1861 was recalled to India to assist in the reorganisation of the Indian Army, finally becoming Secretary to the Government of India in the military department. He had become Lieutenant-Colonel and C.B. for his services in the Mutiny.

From this point Norman became a quasi-civilian, and the remainder of his career, though he filled the important posts of Member of the Council of India, Governor of Jamaica, Governor of Queensland, and finally Governor of Chelsea Hospital, ceases to be of purely military interest, though his views on the subject of our relations with Afghanistan, given in Chapter IX., should be of considerable interest to all soldiers.

The book as a whole presents a striking picture of a man who always did his duty to his utmost ability, and whose career, though latterly passed more as an administrator than as a soldier, may well serve as an example and incentive to all ranks of His Majesty's Service.

A map of India at the time of the Mutiny would have added greatly to the value of the book.

Before and After Waterloo. Letters from Edward Stanley, sometime Bishop of Norwich. Edited by Jane H. Adeane and Maud Grenfell. 320 pp., illustrations. 8vo. London, 1907. Fisher Unwin. 14/6.

These letters were written by the father of the late Dean Stanley to relatives during visits to France and other parts of Western Europe in 1802, 1814, and 1816, and relate what might be seen by an observant traveller with good introductions. Without being devoted to military matters, as the title of the book might lead one to suppose, they contain a certain number of references of military interest. In 1814, the writer was at a reception at the Tuileries, and saw most of the Marshals of France, of whom he gives personal descriptions.

Bishop Stanley especially mentions the excellent reputation for good behaviour and discipline of the Russian troops in France.

There is a short account of the storming of Bergen-op-Zoom, obtained on the spot from a native eye-witness five months after the event. The failure of the British is attributed to the confusion caused by the death of certain general officers in the beginning of the action who had not confided their plans to their subordinates.

It is stated that in the Napoleonic wars, sixty or seventy years before the first Geneva Convention, it was customary to hoist a black flag over hospitals so that they should not be fired on.

The letters give an excellent idea of the condition of France at the various periods, the people, inns, means of communication, etc.

History of the Peninsular War. By C. Oman. Vol. III., September, 1809—December, 1810.—Ocaña, Cadiz, Bussaco, Torres Vedras. 560 pp., with maps and illustrations. 8vo. Oxford, 1908. Clarendon Press. 14/-.

This, the third volume of Professor Oman's history, opens with an outline of the political conditions obtaining in Spain in the latter part of 1809. The next two chapters deal with the operations in Aragon and Catalonia, but chiefly with the siege of Gerona by Verdier, St. Cyr, and Augereau. The account given is vivid and interesting, and a great deal of information seems to be new. None of the French generals appeared in a favourable light in these operations, the usual jealousies and quarrels which appeared in the absence of Napoleon being evident. On the Spanish

side the incapacity and indecision of Blake was balanced by the ability and resolution of Alvarez, whose treatment by the French after the surrender does not redound to their credit.

The autumn campaign of 1809 forms the subject of the next chapter, and the actions of Tamames, Ocaña, and Alba de Tormes are described. The first of these three was a victory for the Spaniards, largely owing to the indifferent generalship of Marchand, who made three weak attempts and was strong nowhere; but Ocaña, where Areizaga was opposed to Soult, resulted in a very severe defeat for the Spaniards, whose cavalry were inefficient and whose general showed a combination of vacillation, hesitation, and rashness which was fatal. He followed no definite plan, and when he had gained a temporary strategical advantage, made no attempt to complete it by a tactical success. At Alba de Tormes the French victory was due to a tactical mistake on the part of Del Parque, to the indifferent quality of the Spanish troops, and to the dash of Kellermann, the French cavalry leader. The whole campaign is instructive, and although such an operation as Kellermann's at Alba de Tormes can hardly be recommended as an example of cavalry action, yet in general the operations show that victory goes to those leaders who follow the well-established principles of war.

We next come to Section XVIII. ("The Conquest of Andalusia"). The first chapter deals with the general situation, showing how the Spanish army had fallen into the common error of attempting to guard every passage through an obstacle, with the result of being weak at all points and strong at none. The result of this policy was soon seen in the complete defeat and practical annihilation of the Spanish army, while Soult and Joseph occupied Cordova and Seville. The French, however, were checked in their attempt on Cadiz, and Joseph returned to Madrid, leaving behind him a garrison of 70,000 troops.

The author now turns his attention to Portugal, and after a comprehensive survey of the geographical features of that country, and of the possible routes for an invasion from Spain, he proceeds to consider Wellington's preparations for defence, in connection with which he also treats the subject of the Portuguese army and administration. The next chapters deal with the French preparations, with the operations of Bonnet in the Asturias, with the siege and capture of Astorga by Junot, with the capture of Ciudad Rodrigo by Ney, and finally with the combat of the Coa and the capture of Almeida by Masséna. In his description of the Coa, Professor Oman pays fitting tribute to the conduct of the Light Division, but blames Craufurd for his action in getting involved in the fight.

The events in Eastern Spain are then related, and the operations of Suchet in Aragon and of Augereau and Macdonald in Catalonia are described. The disasters of the Spaniards were frequently due to their lack of cavalry, and though their leaders at times displayed energy and determination, their lack of combination proved generally fatal. The same factors affected the situation in Andalusia, where the only favourable element was the successful defence of Cadiz, but otherwise the Spaniards were everywhere defeated, though they certainly kept Soult and his lieutenants busy.

The next two chapters deal with Masséna's advance to Bussaco, and with the battle of Bussaco. The descriptions are admirably clear, and with the aid of the excellent maps, which illustrate the advance and the battle, it is possible to grasp the situation and to understand all the important features of the fight. Mr. Oman challenges Napier's accuracy in several instances, and supports his charges by authentic extracts from various sources. He brings out the fact that there was little or no connection between the attacks of Ney and of Reynier, and also that Reynier's attack consisted of two entirely separate phases. A description of the topography of Bussaco is added, in which the salient features which affected the tactics of the battle are well brought out.

The remaining chapters of this section are devoted to an account of Wellington's retreat to the lines of Torres Vedras, and to a very complete and clear description of the lines themselves. The section concludes with the story of Masséna's retreat to Santarem. The author does not fail to criticise Wellington's dispositions in November, 1810, nor those of Masséna, and considers that both leaders did not act up to their reputations. Here the account of the operations in Portugal in this volume ends.

The last two chapters in the book deal with the operations in the north and east of Spain at the end of 1810, and with the political conditions in Spain generally. Appendices contain details regarding the various forces, orders, etc.

It is hardly necessary to say, considering Professor Oman's reputation, that this work will be of great interest to soldiers. Although a great part of it deals with operations in which the British forces did not take part, yet the interest of British officers should not be diminished, for the lessons of the various operations are well drawn, and the mistakes or successes of the various commanders are clearly pointed out, thus providing that instruction which should be the end and aim of all military history. In addition, there is not a dull page in the book, and it will doubtless be of interest to civilians as well as to soldiers. The maps are good, but the book stands in great need of a general map of the Iberian Peninsula. Some of the maps, too, are inserted in inconvenient places.

It is to be noted that Professor Oman maintains that the generally used spelling of "Busaco" is wrong, and that it should be spelt Bussaco, as given above.

The War of 1809 (Krieg, 1809). Vol. I.—Ratisbon. By Major E. M. von Vedropolje and Capt. O. Criste. 710 pp., with 23 maps. 8vo. Vienna, 1907. Seidel. 30/-. Vol. II.—Italy. By Major M. Ritter von Hoen and Capt. A. Veltzé. 507 pp., with 12 maps. 8vo. Vienna, 1908. Seidel. 16/-.

This excellent work has been prepared in the military-historical section of the Austro-Hungarian War Archives. It is based upon the original reports, supplemented by information from other authentic sources, and contains an exceptionally detailed account of the campaigns dealt with.

The first volume deals with the operations in Bavaria from the 10th to the 23rd April, 1809. It is divided into four sections. The first (pp. 1 to 66) contains a history of the political events which led to the war. The second (pp. 67 to 212) deals with the numbers, organisation, and general characteristics of the opposing forces, and with their strategic concentrations; the third (pp. 213 to 300) with the operations from the 10th to 15th April, and the last (pp. 301 to 604) with the operations from the 16th to 23rd April, 1809.

The second volume is devoted to the operations in Italy during April and May, 1809. This volume is similarly divided into four sections. The first (pp. 3 to 45) deals with the concentration of the opposing armies; the second (pp. 46 to 207) with the Austrian offensive in Italy; the third (pp. 208 to 345) with the Archduke John's retreat to the Austrian frontier; and the last (pp. 346 to 432) with the fighting in the Carnic and the Julian Alps.

The appendices (pp. 605 to 710, Vol. I., and pp. 433 to 507, Vol. II.) contain the text of many important orders and reports, in addition to other valuable information. The maps are excellent.

The book should be of great value to officers studying the campaigns in question.

The Siege of Genoa, 1800 (Le siège de Gênes). By Eduard Gachot. 448 pp., engravings, plans and maps. 8vo. Paris, 1908. Plon-Nourrit. 6/-.

M. Gachot is a well-known authority on this period, and the author of several volumes dealing with it:—"The First Campaign in Italy" (1795-1798), "The Second Campaign in Italy" (1800), "Suvarov in Italy" (1799), "The Campaign of Helvetia" (1799).

The present work reads more like a prose epic than sober history, and is a record of what may be accomplished by a determined commander, with beaten and disheartened troops, despite want of money, food and supplies, a hostile population, and daily diminishing numbers. It is founded on the documents in the French archives, the papers of Masséna, now in the possession of his descendants, and contemporary letters and diaries, particularly the diary kept during the siege by an Italian nobleman.

When Napoleon became first Consul by the *coup d'état* of the 18 Brumaire, the army of Italy had ceased to deserve its name: defeated and driven back it only occupied Cori, in Piedmont, where the garrison was besieged, and Genoa, with the strip of coast leading to France, its commander, Championnet, had resigned, suggesting that Bonaparte should be sent to succeed him. Masséna was selected by the Consuls to restore the situation and summoned to Paris from the scene of his successes in Switzerland.

In response to his demands for men, money, and supplies, he could obtain little from Berthier, the minister of war, except promises; at Lyons and Marseilles, where he expected to find magazines, he discovered but little, and was practically left to make his own arrangements with local contractors.

Arrived at Nice, on the 17th January, 1800, he found the troops were deserting literally by hundreds; that the army had neither money, clothing, guns, ammunition, wagons, horses, nor mules; that the men still with the colours were living by robbery or begging; that fever and influenza raged, and that the so-called hospitals were without beds, coverings, wine, medicines, linen or even warm water (through lack of fuel). The blockade of the coast by the British and Neopolitan fleets, under Lord Keith, made it extremely difficult for supplies, even if available, to be forwarded to the troops.

On 10th February, Masséna reached Genoa, where he found mutiny, anarchy and conspiracy. He at once set about restoring discipline, organising, requisitioning and manufacturing. By the 15th March, he had formed three corps, under Soult, Suchet and Turreau, and, in spite of his difficulties, was planning the offensive. On the 4th April, however, Mélas, the Austrian commander, commenced a movement against him with threefold more numerous troops, in four columns, by different routes, with the view of cutting him off and surrounding him. Taking advantage of the dispersion of his opponent, Masséna was able to hold him off for some little time, and even to take numerous prisoners, but was eventually separated from Suchet and Turreau and isolated in Genoa, on 6th April, with 16,000 men of his force, where he was blockaded on land by 40,000 Austrians, and on sea by Lord Keith's fleet. He had to renounce the offensive and assume the modest *rôle* of defending a fortress.

Hampered by an enormous civil population and without reserves of supplies, the situation soon became a terrible one. By the 15th May, the starving population was reduced to devouring "bats, large spiders, lizards . . . grass and seaweed were eaten raw . . . snails and lemon bark commanded high prices. Wood fibre, worms, grasshoppers, cockchafers, and caterpillars were sold when the butchers had no more dogs, cats, or rats to offer. Leather for stewing was sold at 2 francs a pound. The ration of the garrison was reduced to 5 ozs. of bread made of beans and hay, 4 ozs. of horse, and ¼ pint of wine . . . but often the soldier was on half or even quarter rations." The deaths per diem gradually rose in number: 315 on the 25th May, 419 on the 28th May, 523 on the 2nd June.

A heavy sortie was made on the 11th May in the hope of capturing a large supply depôt, but it failed, and Soult was wounded and captured. After this there was no active defence.

Napoleon had required Masséna to hold Genoa until the 23rd April. He promised to hold it until the 20th May, but receiving no message by that date continued the defence.

By the 3rd June eating leather was 14*s.* a pound. Masséna dined on grass soup and a piece of horse without bread; the Austrian prisoners ate human remains; the garrison was reduced to 4,000 men. Yet in spite of the agonies endured, Masséna was not only obeyed, but an officer was able to write of him: "When Masséna marches out the dying raise themselves and try to follow him. To these atheists he has become a god." Famished and sick, his men never ceased to admire a chief

who knew how to appeal to their courage, and cared for them as if they were his children; but they said, "Masséna will make us eat our boots before he surrenders."

On the night of the 1st—2nd June the Austrians attempted to surprise the fortress, but after the repulse of one detachment the others retired.

On the 2nd June a British naval *parlementaire* proposed a "capitulation," but Masséna would not hear of the word. On the 3rd the Austrian commander Ott proposed a *reddition;* on the 4th Masséna met Keith and Ott and obtained his own terms:—The French were allowed to march out with arms and baggage, free to recommence hostilities after a truce; the sick and wounded were to be transported by sea to Antibes. The arrival of Napoleon in Northern Italy and the necessity for the instant presence of the Austrian troops elsewhere made hours of value and forced the Allies to grant easy conditions. They would have done better to have raised the siege rather than to negotiate, for without horses, without supplies, and his men invalids, Masséna could not have left Genoa.

On the 24th June the French, in accordance with the terms of the treaty at Alessandria, made after Marengo, were again in possession of Genoa.

An account of the operations of the French left wing and centre, which was separated from Masséna, and of the siege of Savona, is included in the volume.

Although the maps supplied with the work possess a special interest as being photographic reproductions of those used by Masséna, they are somewhat difficult to decipher, and do not appear to contain the names of all the places referred to in the narrative.

The Loss of San Domingo, 1789-1809 (La perte de Saint-Domingue, 1789-1809). By Dr. Magnac. 275 pp., with a map. 8vo. Paris, 1908. Librairie Africaine et Coloniale. 3/-.

An interesting account of the revolution in San Domingo, and of the operations undertaken by General Leclerc. The principal military lesson brought out by this book is the necessity of invariably seizing the initiative in dealing with black races, and of crushing a rebellion without delay by prompt and energetic offensive action, combined with stern repressive measures.

Blücher (Blücher). (2nd vol.) By Gen. v. Unger. 397 pp., with 12 plates and 29 maps. 8vo. Berlin, 1908. Mittler. 7/9. The first volume was reviewed in the JOURNAL for June, 1907, page 767.

This volume, which is in continuation of a former one dealing with Blücher's career up to 1811, covers the period of the war of Liberation, and the final overthrow of Napoleon. The author considers that the popular estimate of his hero as "Old Blücher" and "Marshal Vorwärts" scarcely does justice to Blücher's real military talent. It was largely to the old marshal's warlike instinct, and to his determination in the face of all obstacles, that Germany owed her liberation from foreign rule. During the long struggle that culminated at Paris in 1814, it was from Blücher's headquarters that the inspiration came for a renewal of the offensive, when the vacillation of Schwarzenberg, or the jealousies of the allied sovereigns would have sacrificed the fruits of victory. But among so large a staff it has not been easy to discover the part played by any one individual, and thus Gneisenau has generally been considered the guiding spirit, and assigned the chief credit. The present volume shows how ably Blücher's decisions were made, on more than one occasion, in the absence of Gneisenau. This is especially evident at Waterloo, where Blücher's soldier-like decision to march to Mt. St. Jean, showed a clearer view than Gneisenau's more calculating spirit was capable of. The book closes with an eloquent comparison between Blücher's rugged but straightforward and soldierly character, and the egotism and arrogance of the tyrant in whose overthrow he bore so glorious a part.

Life and Services of Viscount Lake. By Col. Hugh Pearse. 429 pp. 8vo. London, 1908. Blackwood. 15/-.

Lake began his military career at the age of 13, in 1758, in the 1st Regiment of Foot Guards.

Though he took no part in the great victories of 1759—Minden, Quebec, Madras, and Quiberon Bay—he gained early experience of active service in the Seven Years' War, which ended with the fall of Cassel in 1762.

He then had a long period of home service, brought to a close by the outbreak of the War of Independence in America in 1775, when every available fighting man was required. The attitude of the "Opposition," who referred in the House of Commons to any British success as "terrible news," undoubtedly led to the intervention of France and our ultimate loss of America. The result was that England, without an ally, was at war with her Colonies, France, Spain, Holland, and in India, and was further embarrassed by riots in London and in Ireland.

The surrender of Cornwallis at Yorktown in 1781 brought these wars to a close; a surrender directly attributable to the faulty distribution of our fleet, due to an attempt to guard all our possessions simultaneously. This gave de Grasse command of the sea sufficiently long to complete the isolation of the British troops in the Yorktown Peninsula, and to allow the French and American land forces a free hand in the investment of the town.

Lake spent the ensuing period of home service between the dissipations of the Court and the representation of Aylesbury in the House of Commons. In 1793, being now a major-general, he accompanied the small British army which was thrown into Holland to oppose the invasion by the Republican troops. By August the Allies (England, Austria, Prussia, and Holland), were so successful that, but for the

dissensions almost inseparable from such coalitions, they might have marched on Paris and restored the Monarchy, but the opportunity was lost. Lake was recalled in 1794 to take up the appointment of Col. of the 53rd Regiment, and in 1796 became Major-Gen. on the Staff in Ireland. He was immediately threatened with invasion by 16,000 French troops, but fortunately the weather was rough, and the expedition could not land. In 1798 he had a considerable hand in the suppression of the Irish rebellion, and immediately afterwards marched to Mayo, where Humbert with 1,100 French troops had landed. It is interesting to note that at this period of small sailing ships, it was estimated that the French would have had no difficulty in landing 40,000 men on the coast of Ireland. Though he managed to keep the field for 17 days, and was successful at the "Castlebar Races," Humbert eventually surrendered with his whole force. In 1800 Lake was appointed Commander-in-Chief in India, under Wellesley as Governor-General. The Maratha War broke out in 1803, and Lake's part in Wellesley's scheme was the command of the Northern Army; his task was the defeat of the army of Sindhia, which was based on Agra, Delhi, and Aligarh, and had been organised and trained by Frenchmen, most of whom were dismissed by Sindhia, or quitted his service on the outbreak of war. His own army consisted of 10,000 men, accompanied by no less than 100,000 camp followers. He defeated the French General near Aligarh, stormed that fortress, defeated Bourquin at Delhi, captured Agra after a short siege, and finally won the important battle of Laswari, after a march of 65 miles in 48 hours. This, fought just after Assaye, proved the turning point of the campaign, and peace with Sindhia was signed at the end of the year. Holkar, jealous of Sindhia, had remained inactive while his rival suffered the above successive defeats, but early in 1804 he took the field against the British and gained one or two successes against the detachments into which Wellesley had divided his army. Lake's great energy, however, backed up by some wonderful marching by his troops, restored British prestige, and victories near Farakhabad and Dig, and the persevering though unsuccessful siege of Bhartpur, opened the way to an honourable ending of the war. The Court of Directors of the India Office, however, considered this a suitable opportunity to recall Wellesley, who on many occasions had shown more regard for the public weal than for the wishes of "his very worthy masters."

Wellesley sailed for England in August, 1805, and his successor, placing economy before all else, gave Lake orders which amounted to a complete surrender of all gained.

Lake, however, took upon himself to continue Wellesley's policy, and having temporarily satisfied Sindhia, he finally forced Holkar to accept terms early in 1806.

So disgusted was he with what he termed the "huckstering policy" of the Directors, that he would only remain in India long enough to demobilise; early in 1807 he returned to England, and in the following year died after a short illness at the age of 63.

Colonel Pearse is fortunate in his selection of his subject, and his treatment of it has given us a book which is full of interest both from a military and an historical point of view.

The maps to illustrate the campaigns are clear, and contain the names of practically all places mentioned in the text.

The Cambridge Modern History. Vol. V.—The Age of Louis XIV. Edited by A. W. Ward, A. W. Prothero, and S. Leathes. 927 pp. 8vo. Cambridge, 1908. University Press. 16/-.

The last volume (IX.) issued of this history was noticed in No. 356, page 1304. The volume under review is of considerable military importance, for it deals with all the wars of the latter part of the 17th century, and with those of the first 15 years of the 18th century. It thus comprises the fighting against the Turks in Hungary, the wars of Sweden with Denmark, Charles XII. of Sweden's campaigns, and the wars of the Spanish Succession, including all Marlborough's campaigns. A good many of the more noted battles of European history come within this period—Blenheim, Ramillies, Oudenarde and Malplaquet; Narva, Dunamünde, Pultusk and Poltawa; Fehrbellin, Lund, etc., etc. Besides engagements on the continent of Europe, we have also William III.'s operations against James II. in Ireland, including the battle of the Boyne and the sea fights of the Anglo-Dutch wars in 1666, 1672 and 1673. The battles are not generally described in any detail, nor would it be possible to understand them without the aid of battle plans, but the main outlines of the campaigns are generally clearly and carefully shown, though, in this case also, it would have been far easier to understand them had maps of the Europe of that time been provided with this volume.

The writer of the chapter on Marlborough's campaigns ascribes his success chiefly to his knowledge of how to use the three arms, and of how "the combination of all three would increase the efficiency of the whole." In another chapter the success of the Austrians and Germans against the Turks is ascribed to the teaching of Montecuculi, and to the attention which the Germans had given to organisation and tactical training whilst the Turks had stood still. It is interesting to note how Charles XII.'s invasion of Russia failed principally owing to the Fabian tactics of the Russians, and to the great difficulty which Charles experienced in supplying his army, much the same causes as were responsible for Napoleon's failure. A great part of the volume is naturally given up to the political history of the time, and much of the information therein given must be interesting to the military as well as the civilian student of history. The history of Russia is traced from 1462, and that of Prussia from 500.

The chapter on the early history of the Colonies of European Powers and of Europeans in India, will be of particular interest to Englishmen.

Chapters on the literary, religious and scientific history of the time complete a volume of this history which will certainly not be found the least interesting of the series.

The very complete bibliography, the chronological table, and the excellent index deserve mention.

The History of the Thirteen Colonies of N. America, 1497-1763. By R. W. Jeffery, M.A. 298 pp., 1 map, and 8 illustrations. 8vo. London, 1908. Methuen. 7/6.

The author starts by describing the early voyages of discovery to the North American Continent. The history of the foundation and gradual development of the various colonies, up to the taking of Quebec by Wolfe in 1759, is then described. A chronological table of events affecting the North American Continent between the years 1492 and 1763 is given at the end of the book.

A History of the Volunteer Forces, from the earliest times to the year 1860. By Major C. Sebag-Montefiore, 1st Middlesex R.E. (Vols.). 409 pp., with illustrations. 8vo. London, 1908. Constable. 15/-.

After an introductory chapter on Royal Prerogative and Citizen Duty, this book proceeds with the genesis of the volunteer, which took place in the end of the eighteenth century. The author then gives an account of the volunteer movement at the time of the Jacobite Rebellion of 1745-6; this movement, however, ceased after the battle of Culloden, and all the troops which had been raised were disbanded. It is curious to note how in some respects the conditions obtaining at that time were very similar to more modern conditions.

As a result of the disasters of the American War of Independence and the declaration of war by France and Spain in 1779, bodies of volunteers were again raised by various towns and counties, but after the peace of 1783 they were disbanded.

The next chapter gives an account of the Irish Volunteers of 1778-1796.

The French Revolution and the events of 1793 resulted in a declaration of war with France, and volunteers again came into existence. Four chapters are devoted to the history of the volunteers at that time, and a full account is given of the conditions under which they served. These chapters deal with the period from 1793 to 1805, including the threatened invasion by Napoleon.

After a chapter on the legal status of the volunteer, which is interesting at the present juncture, the writer describes the decadence of the 1803 system, the final disbandment of the volunteers taking place in 1814.

The last chapter deals with the 1859 revival.

There are ten appendices dealing with various points connected with the volunteers of 100 years ago, and two which contain the text of General Peel's circular to the Lords Lieutenant on the raising of the volunteer force in 1859.

This book should prove interesting reading to those interested in the organisation and development of the new Territorial Force. Many valuable lessons can be learnt from the story of the efforts of successive ministers to wrestle with the problems presented by the organisation of the military forces under a voluntary system.

The Historical Memoirs of the 18th Hussars. By Col. H. Malet. 394 pp. 8vo. London, 1907. Simpkin. 18/-.

This book traces the records of the 18th Hussars from their raising in 1759 to 1904.

The services of the regiment include some skirmishes in Jamaica in 1795, the battle of Bergen (1780), the Corunna campaign, the campaign of 1813-14 (including Vittoria, Pampeluna, the Nive, Orthes, and Toulouse). It was also present at Waterloo.

The regiment was disbanded in 1821 and re-raised in 1858.

The services of the regiment in South Africa under the late Col. Knox are well known.

This book will doubtless be valuable to the regiment as a record of their past services in all parts of the world.

The Story of the Guides. By Col. G. J. Younghusband, C.B. 207 pp., 16 illustrations from photographs. 8vo. London, 1908. Macmillan. 7/6.

The story of the Guides is one of almost continuous service on a frontier where peace seldom reigns. Since the modest beginning in 1846, when one troop of cavalry and two companies of infantry were raised under the ægis of Sir Henry Lawrence and the leadership of Harry Lumsden, to the present day, when the corps comprises 1,400 horse and foot, there have been few important frontier operations in which the Guides have not taken part.

This volume is rather a story than a complete history. Among the operations briefly but graphically described are the Second Sikh War, the massacre of Cavagnari at Kabul, the Afghan War of 1878-80, Chitral, the Malakand, and the marvellous march of 580 miles, at the rate of 27 miles a day, from Mardan to Delhi, in the hot month of May during the Mutiny.

A Review of the History of Infantry. By Col. E. M. Lloyd. 302 pp. 8vo. London, 1908. Longmans, Green. 6/-.

This volume carefully traces the development of infantry tactics, formations, and arms, and briefly describes their effect in the more important battles of the world from Platæa to Mukden.

The Defence of Belgium; in the past and at the present time (La défense de la Belgique; autrefois et aujourd'hui). By Louis Navez. 345 pp. and 38 illustrations. 8vo. Brussels, 1907. Lebegue. 4/-.

This is a condensed military and political history of Belgium from the time of the Roman Empire up to the present day, more especially with reference to the nature and amount of defence which has been offered to the numerous invasions of Belgium which have taken place during the above-mentioned period. The final chapter is a review of the system of defence of Belgium now obtaining.

The purpose of the book is to arouse a more patriotic spirit in the Belgian nation, as, in the opinion of the author, his compatriots do not sufficiently realise their duty to their country as regards its defence. It is repeatedly pointed out that the guaranteed neutrality of a country is worthless unless its military power is sufficient to enable it to resist aggression.

POLITICAL.

The Anglo-Russian Rivalry in Asia during the 19th Century (La rivalité anglo-russe au 19ième siècle en Asie). By Dr. Rouire. 300 pages, with a map. 8vo. Paris, 1908. Colin. 5/6.

The Anglo-Russian Agreement gave rise to so much adverse criticism in this country that it is of great interest to hear a comparatively impartial foreign opinion. The views held on the Continent vary in accordance with the desire of the different nations to see friendly or hostile relations prevail between Great Britain and Russia. The French people welcomed the agreement between their friend and their ally, and were ready and anxious to look upon it in the most favourable light. It is, therefore, only reasonable to expect Dr. Rouire to enter upon his task in an appreciative frame of mind. Although, however, it is fair to admit that his mind may have been prejudiced in favour of the agreement, he has in this volume advanced very cogent arguments in support of his views.

As regards Persia, Dr. Rouire points out that Russia's influence has become paramount in the northern portion of the country, and that Great Britain abandoned no rights or advantages, but merely gave her official assent to a position which she had allowed to arise by her own negligence, a position which she had become powerless to alter in her own favour. Though the Russian sphere of influence undoubtedly includes the richest and most fertile provinces of Persia, Great Britain receives valuable concessions in that she secures an equal share with Russia in the supervision of Persian political affairs and finances, in that Russia has acknowledged her special interests in the Persian Gulf, and has allowed Seistan to pass definitely under British control. Moreover, Russia has renounced all political action in Teheran, has recognised the principle of commercial equality, and has apparently abandoned the idea of gaining access to the sea and acquiring a warm water port.

With regard to Afghanistan, the author is of opinion that Great Britain has gained what she wanted, and that the position of Afghanistan as a buffer State is stronger than ever. In the case of Tibet, he seems to think that Great Britain has been only too glad of a chance of withdrawing from that inhospitable country, now that she has demonstrated her strength to the Tibetans, and has made it certain that no foreign Power will be able to establish itself in the land of the Lamas.

On the whole, then, Dr. Rouire is disposed to offer his heartiest congratulations to both parties on settling disputes which had existed for so long, and had so often threatened to bring about war between the two nations, a war the costs and results of which would have been entirely out of proportion to the magnitude of the questions involved. He shows that Great Britain is now free to devote her attention to the Persian Gulf, to Oman and to Koweit. Whilst mentioning the somewhat anomalous position occupied by France on the Arabian coast, he emphasises the great importance of Koweit, and advises Great Britain to concentrate her energies on the acquisition and maintenance of this place, the future terminus of the Baghdad railway and the key of the new route to India.

The whole tendency of the book is to rejoice that the two principal friends of France have become reconciled, so that their strength and that of France herself are thereby increased and have become free for use against their real enemies, who are rapidly growing more dangerous and more intent on mischief. The author believes that Russia and Great Britain have no serious reason to quarrel in Asia, and is glad to see that they have at last recognised this fact, and have realised that it is high time for them to concentrate their strength in order to deal with their true enemies.

The book is interesting and well written; there are a few inaccuracies, *e.g.*, Sikhs are described as being "either Hindus or Mohammedans," but these do not appreciably detract from the merit of the work. The author has not ventured on any prophecy regarding the attitude of the Ameer of Afghanistan with respect to the agreement.

England's World-power (England's Weltmacht). By W. Langenbeck. 117 pp., with 19 illustrations in the text. 8vo. Leipzig, 1907. B. T. Teubner. 1/3.

A brief sketch of the world-power of Great Britain from the 17th century to the present day, in which the author rapidly reviews the commencement of British colonial policy at the time of Queen Elizabeth; the development of the Anglo-Saxon

character during the 17th and 18th centuries; the raising of Great Britain to a world-power after her struggles against Spain, the Netherlands, and France; her commercial, maritime, and colonial development during the 19th century; her present-day political position; and the future of the British Empire.

The author concludes by discussing the possibilities of the collapse of the British nation owing to desire for money and luxury, the antipathy to manual labour, and the craving for sport, gambling, and betting.

The Real India. By J. D. Rees, C.I.E., M.P. 345 pp. 8vo. London, 1908. Methuen. 10/6.

An answer to the advocates of the National Congress movement in India. It has been well described as "a wholesome corrective to the propaganda of the school who are most active in instructing people at home upon Indian affairs."

The book deals chiefly with our administration of India, the causes of unrest, and proposals for reform, but the chapter on "Later History" deals with military policy on the North-West Frontier, with recent changes in military administration, and gives an account of the Indian Army, omitting, however, to mention the formation a year ago of the Northern and Southern Armies in place of the three "Commands."

The chapter on "Native States" deals with their military strength, the Imperial Service Troops, and very briefly reviews our relations with Arabia, Persia, Afghanistan, and Tibet.

The chapter on "Russia in the East" gives a short account of Russia's military position in Central Asia, and of the Anglo-Russian Agreement, and its effect in securing the North-West Frontier.

The chapters on "Unrest and Reform," with remarks upon the attempts made to tamper with the loyalty of the Native Army, are interesting reading.

England and Germany. By Austin Harrison. 181 pp. 8vo. London, 1907. Macmillan. 2/6.

The volume contains a series of letters, reprinted from *The Observer*, depicting the political relations between Great Britain and Germany. The writer endeavours to show with what suspicion we are regarded in Germany, and it is possible that he does not take an extravagant view of the situation. The letters are instructive, and worthy of study.

Germany and the Higher Politics, 1907 (Deutschland und die grosse Politik anno 1907). By Dr. Th. Schliemann. 450 pp. 8vo. Berlin, 1908. Reimer. 6/-.

This is the seventh number of this valuable annual; written week by week of the year by a singularly clear-headed expert, it gives a summary of the politics of the entire world; although the author never entirely loses sight of the German point of view of political events in foreign countries, the picture presented is a faithful and accurate one.

Among the subjects treated are the political and economical results of the Russo-Japanese war, the troubles in India, the relations of France and Germany (he describes them as in a state of *détente*, as opposed to one of *entente*), Pan-Islamism, the problem of the House of Lords, the Baghdad Railway, the English in Egypt, the fermentation in China, the Imperial Duma, etc. He also analyses the political literature of the year. There is a good index.

The Future of Germany: A Warning (Die Zukunft Deutschlands: eine Warnung). By R. Martin. 153 pp. 8vo. Leipzig, 1908. Hirschfeld. 3/2.

The peril that menaces Germany is neither ultramontanism, nor social democracy, but the embarrassment of the Imperial finances. The growing wealth of individuals is in striking contrast with the poverty of the exchequer, and the decline of national credit abroad. Too much is levied by indirect, and too little by direct taxation, hence the wealthiest classes pay too little. The contributions of the several States are inadequate to meet the needs of the Empire, and yet, in a war, it is on the Empire that the financial strain will fall.

It is Bismarck who is to blame for allowing this defect in the Imperial edifice, and, indeed, that statesman confessed that the reform of the finances was beyond his powers. The author feels no such hesitation; the remedy lies in a graduated scheme of income-tax and death duties, thus placing at the disposal of the Empire resources now available only for the several States.

In the present situation, even a successful war would ruin Germany. The author is confident of the ability of Germany to subdue the decadent French or the illiterate Russians, either separately or combined, but the support of Great Britain might enable these nations to protract the war, thus entailing expenses for which no war indemnities could ever re-imburse Germany. It is to be hoped that Germany, once her finances have been re-modelled on the above lines, will take the lead in air-ship construction, just as she did in railway construction prior to 1866. London will then no longer be inaccessible, and a term will be put to British maritime supremacy. When this position is attained the peace of the world will be for ever assured.

Modern Germany (L'Allemagne Moderne). 62 pp. 4to. Paris, 1908. La Vie Contemporaine. 1/3.

This book is one of a series, published by La Vie Contemporaine, on the principal nations of the world, the articles being written by experts in the countries concerned. It therefore represents the views of leading Germans, on Germany, written for the benefit of Frenchmen.

The political chapter is by Count Reventlow. Discussing home politics, he considers that Prince Bülow's government, by the aid of the "Bloc" is laying the foundation of a really national party; the law of expropriation against the Poles is extolled as a bold vindication of Prussian superiority; from Schleswig no danger is anticipated, so long as the Danes are ruled with an iron hand. (Such language must sound strangely to Republican readers.) As regards foreign politics, the need for markets abroad has compelled Germany to found a colonial empire, thus rendering a powerful navy indispensable; but this is a period of "English policy," of ententes and coalitions all aimed against Germany, the dominating factors being the power of England's fleet and the diplomatic skill of her sovereign. Germany seeks freedom of trade in every market. Is it probable, then, that she will tolerate any foreign Imperial leagues that may be formed to exclude her commerce?

In the military chapter, General v. Pelet Narbonne dwells on the efficiency and warlike spirit of the army; the recent victories in South West Africa prove, he considers, that the Germans have lost none of their ancient valour. Admiral von Valois describes the navy, which, he says, only began to exist by the law of 1900. He ridicules the allegation that Germany aims at challenging the vastly superior English fleet; but he quotes, with apparent approval, a passage from a French writer urging war with England as a sacred duty. Professor Elsbacher concludes with an article on the spirit of modern Germany.

War or Peace? Our Prospects in a Future War (Krieg oder Frieden? Unsere Aussichten in einem künftigen Kriege). By Colonel Gädke (retired). 53 pp. 8vo. Berlin, 1907. Herm. Ehbock. 6*d*.

The well-known author of this little pamphlet has recently been forced to abandon his military title by the decision of a Court of Honour, and he now signs himself in the *Berliner Tageblatt*, to which paper he contributes articles on military subjects, as Gädke, late Colonel.

In the pamphlet under review he discusses briefly, and in a very comprehensive manner, the inferior political position in which Germany finds herself placed at the present day with respect to other Powers, and the errors of foreign policy which have been committed by German statesmen during the last seventeen years. He attributes the situation entirely to the impetuosity of the Emperor and to the astute diplomacy of King Edward.

Great Britain is regarded as Germany's natural enemy, and although some space is devoted to reviewing the military position of Germany as compared with that of France and Russia, by far the greater part of this portion of the pamphlet deals with the naval situation as regards Great Britain and Germany. The question of war or peace between these two Powers is freely discussed, and the fear of Great Britain taking the initiative is the main argument which the author brings forward for the rapid strengthening of the German Navy, to which point the discussion throughout the pamphlet leads, and in which it culminates. With a Liberal Government in power in England, the author has no fear of aggression on the part of this country, but he fears the worst should the Conservative party once more assume the reins of direction of foreign affairs.

The pamphlet is well worth reading.

German Armament Policy of the Future (Deutsche Wehr-Politik der Zukunft). By a German abroad. 450 pp. 8vo. Zurich, 1908. Zurcher and Furrer. 3/-.

In the introduction of this work the author, although hinting at the possibility of Great Britain attacking Germany, maintains that the last idea of the latter country is to go to war with Great Britain. Next to the German people he regards the British as the greatest nation in the world, far-seeing in their foreign policy, always knowing what they want and how to gain their ends. France, on the other hand, is regarded as the natural and hereditary foe, and the subject matter of the book deals with the necessity for Germany of always maintaining an army on a peace footing which shall be vastly superior in numbers to that of France. Many of the earlier pages are devoted to the investigation of the existing establishments of all arms in the German Army as compared to that of France, and the author points out in what respects the army should be augmented. He is an advocate for fourth battalions being created on the French half-battalion system. According to him, no increase of expenditure appears to be necessary. The requisite increase of numbers may be obtained without spending a single mark, by depriving officers of their "soldier maid-servants" and forming the new battalions with the 37,000 men thus obtained. He does not suggest how the question of officers' servants is to be dealt with, nor how the cadres for the extra battalions are to be created. The extra men for units of other branches of the service are to be got by reducing the periods of service, and so increasing the reserve. Other portions of the book are devoted to questions of leading and its improvement, hygiene, supply, and equipment, naval policy, and the forming of alliances. Some forty pages are devoted to discussing the financial position of the German Empire.

The Channel Tunnel: Its relation to the security of France and Great Britain (Le tunnel sous La Manche: ses rapports avec la sécurité de la France et de la Grande Bretagne). By Georges Viernot. 166 pp. 8vo. Paris, 1908. Lavauzelle. 2/6.

In discussing this well-worn question, the author shows himself to be a strong partisan of the tunnel scheme. He enumerates the British arguments against the construction of a tunnel, amongst which the following may be cited: (1) The danger of a surprise invasion by the French; (2) Such danger constantly creating new panics, which would be disastrous to the finances, trade, and security of Great Britain; (3) The tunnel certain to cause military conscription in the United Kingdom. He deals with these in turn, showing that, in his opinion at least, these objections are founded on fantastic fears and fallacies.

He then proceeds to describe the advantages which both countries would gain by the construction of a tunnel, *e.g.*, (1) The enormous profits accruing from traffic; (2) The great commercial advantages resulting to France and Great Britain; (3) The value of a safe and inviolable source of food supply to Great Britain in the event of a war with one or more strong naval Powers, other than France; (4) The bond of friendliness likely to be caused between France and Great Britain by the existence of a tunnel; (5) The great power which would be wielded by the two countries against a common enemy, and especially the ease and security with which the British expeditionary force could be despatched to the Continent to assist France against Germany; etc.

The book is interesting and instructive, and the author has supported his views with considerable skill and ability, and has made out a good case for the construction of a tunnel. It is significant that the author, like most intelligent men on the Continent, appears to regard a conflict between Germany and Great Britain as inevitable, and even expresses his wonder that it has not already broken out. He also gives utterance to an opinion which is held by numerous foreign authorities, namely, that the time is not far distant when Great Britain will lose her maritime supremacy, or, at the very least, will be compelled to fight for it on terms which will by no means justify her in entertaining any reasonable certainty of victory.

South Africa: A Geographical, Ethnological, and Economic Study (Südafrika, eine Landes-, Volks- und Wirtschaftskunde). By Professor Passarge. 355 pages, with 47 plates, 34 maps, and numerous sections. 8vo. Leipzig, 1908. Queller and Meyer. 8/-.

The first portion of the book treats of the physical geography, fauna, and flora of South Africa. The second part deals with ethnography, languages, the history of ancient civilisations, and the effect of modern civilisation upon the natives. As regards the latter point, secure government has resulted in an enormous increase of population, while the high wages offered for labour in the mines have had the effect of breaking down tribal divisions, and have substituted the family for the tribe. As regards political divisions, the Portuguese Colony of Angola should expect a great development when the projected railway near the southern boundary is completed. Mozambique is valuable for its through traffic, but the Portuguese tenure is uncertain, and depends upon the goodwill of Great Britain. The future of German South-West Africa must depend largely upon the exploitation of its mineral resources; the acquisition of Ovamboland is important, and should be proceeded with by a policy of railway penetration. Commercially, the Protectorate can never attain to the first rank, unless relations with Great Britain should become sufficiently cordial to allow of a railway being constructed from Kimberley to Swakopmund. The future of South Africa is bound up with the native question, and government with a strong hand is thought to be the only solution of this problem.

South-West Africa, German or British? (Südwest-Afrika, Deutsch oder Britisch?) By an Old Afrikander. 47 pages. 8vo. Leipzig, 1907. Dieterich'sche Verlagsbuchhandlung. Theodor Weicher. 9*d*.

The pamphlet deals with the question as to the ultimate possession of German South-West Africa by Germany or Great Britain. The author points out that British writers have always belittled the value of the German Protectorate, and suggests that the underlying motive is, that the Germans may eventually become impressed with the same idea, and be ready to give up the country to Great Britain. He, himself, paints the prospects of the possession in rosy colours, and considers that under a good administration the Protectorate has a great future before it. In connection with this supposed British covetousness, he quotes a number of cases showing how the recent native rising in the Protectorate was, from his point of view, fostered, if not engineered, by British intrigues, with a view to the overthrow of German rule.

German Expansion outside Europe (L'expansion allemande hors d'Europe). By E. Tonnelat. 290 pp. 8vo. Paris, 1908. Armand Colin. 3/-.

An interesting work, dealing with German emigration to the United States, Brazil, Shantung, and South Africa, her colonies or possessions in those countries, and their political importance. The author reviews the whole history of the movement, from the time when Germany was a heterogeneous collection of states, large and small, up to the present day, when Germany is a world Power, with boundless ambitions and a vigorous pan-Germanic policy.

The author is evidently of opinion that the Germans have not been an unqualified success as colonists; he pays a tribute to their energy, and asserts that Germany shrinks from no expense in furthering the development of her colonies; he adds, however, that she shrinks from no cruelty or barbarity in pursuing her object.

The France of to-day and the France of to-morrow (La France d'aujourd'hui et la France de demain). By Jules d'Auriac. 94 pp. 8vo. Paris, 1907. Berger-Levrault. 2/-.

This work gives a sketch of the social and political conditions existing in France at the present time. The author argues that France is still far from being a truly democratic country, and expresses the opinion that class differences are almost as marked now as they were before the Revolution of 1789. He looks upon the Army and Navy as the chief nurseries of such class distinctions, and recommends their further democratisation; he would like to see St. Cyr abolished, and all the officers of the French Army selected from the ranks, *i.e.*, from the N.C.O.'s. He also inveighs against the evils of clericalism, and draws a vivid picture of what the state of France would be if she allowed herself to be controlled by the clergy.

The views put forward in this volume are those of a large section of French politicians, and appear to be well expressed, though it is impossible to agree with many of the author's opinions and theories.

French Africa (La France Africaine). By Major Prosper Germain. 450 pp., with maps and diagrams. 8vo. Paris, 1907. Librairie Plon (Plon-Nourrit & Co.). 6/8.

The title of this work somewhat belies the true nature of its contents, which are not confined to purely African matters. The book is, in reality, a plea for the formation of a great French Empire in North Africa, by means of exchanging the remaining French Colonies in all parts of the world with those of other Powers in Africa.

The author leads up to his proposals with a very able discussion of international politics, the grouping of nations, prophecies of future wars, etc. He shows the value and necessity of the *entente cordiale* to Great Britain and France: firstly, on account of the common danger from Germany; secondly, to France on account of the security to her Colonies and trade afforded by the British fleet—to Great Britain because, in the war with Germany that must inevitably come, the French Army will be indispensable in order to effect the complete overthrow of Germany. Whilst expressing his entire approval in the *entente cordiale*, and in considering the question of the conclusion of a definite alliance, Major Germain says that France must keep herself strong enough to make her alliance of sufficient value to England, and to enable her to defend herself against Germany. On the other hand, he urges the importance of England destroying the German fleet before the latter gets too strong, a result which can only be attained by the formation of a strong army, to act in co-operation with the French land forces.

Major Germain is no believer in the doctrine of universal peace, and is of opinion that wars will never cease on this planet. Every country must keep itself in readiness for battle; military strength must be kept up by riches obtained through commerce—a military Power alone will collapse unless supported by commerce, like Rome; without adequate military strength no commercial state, however wealthy, can long maintain its position, *e.g.*, Tyre, Carthage, Venice, and Portugal.

In view of the strenuous struggles certain to occur in the near future, the author advocates the consolidation of the possessions of the various great Powers. He recommends a system of exchange of Colonies, and would like to cede Indo-China, New Caledonia, the French Colonies in India, the New Hebrides, etc., to England in return for Nigeria, the Gold Coast, Sierra Leone, and Gambia; to Germany he would give the Society Islands, Jibutil, and Kwang-Chiao-Wan in return for Togoland and Kamerun. He would like to see the energies of France entirely restricted to her Colonies in North-West Africa. Whilst admitting the great benefit which would accrue to France from such an arrangement, he argues that considerable advantage would result to the other Powers involved in the transaction.

Major Germain's remarks on the many advantages of concentration are of much interest, and he certainly adduces strong arguments in favour of his scheme. Though, however, we may readily agree that it would be highly advisable for France to hand over her distant possessions in the Far East and in Oceania in return for the British and German Colonies in North-West Africa, it seems impossible to believe that Great Britain or Germany would consent to such an arrangement. The picture of a vast African Empire in one solid block is no doubt highly alluring to Frenchmen, and the economic and strategical advantages would certainly be very great; for Germany and Great Britain, on the other hand, the benefits are difficult to see—they would acquire Colonies of less value than those abandoned, and these new possessions would not have the effect of greater concentration, but would merely increase the financial responsibilities and strategical difficulties of the two countries.

As presented by the author, the scheme appears to be Utopian and impossible of realisation. In spite of an inclination to overlook the interests of other countries, however, the author's ideas are good, whilst his imagination is vivid without being fantastic. The book has the merit of originality, it is written in easy French, and contains much useful information and many interesting statements.

Turkey in Europe. By Sir Charles Eliot, K.C.M.G. 459 pp., 2 maps. 8vo. London, 1908. Edward Arnold. 7/6.

This is the 2nd edition of Sir Charles Eliot's well-known work published in 1900 under the *nom-de-plume* of "Odysseus."

Two supplementary chapters on Turkey in 1907 have been added, and a few statements which are obviously no longer correct have been altered. Otherwise no change has been made in the book, which remains of invaluable assistance to the student of the Turkish Empire.

Austria and the Italian Frontier (L'Autriche et la frontière italienne). By Captain Victor Duruy. 65 pages, 6 sketch maps. 8vo. Paris, 1907. Chapelot. 1/-.

The author points out briefly the general situation on the Austro-Italian frontier, and, whilst avoiding a political discussion, shows how both nations have lately strengthened their frontier forces. A detailed statement of the frontier troops of both Powers is given, together with a general description of the various fortifications. The lines of communication, which would in all probability be made use of by either side in the event of hostilities, are dealt with at length, and their vulnerability discussed. The sketch maps are rough and hardly do credit to the work.

The Trade and Administration of the Chinese Empire. By H. B. Morse. 393 pp., with 6 appendices, 2 maps, and several plates and photographs. 8vo. New York, Bombay, and Calcutta, 1908. Longmans, Green. 7/6.

The author is an American and graduate of Harvard, who went to China thirty-three years ago, and holds a high position in the Inspectorate-General of Chinese Customs.

The scope of the book is greater than its title implies. The first portion contains a clear and succinct history of China from the earliest times. The following subjects are also dealt with:—Principles and method of government; the court, nobility, defensive forces, and public departments; revenue, taxation, currency, weights and measures; conditions under which foreigners reside in China; treaty ports, development of foreign trade, the opium question, Inspectorate-General of Customs, Post Office.

The appendices comprise a translation of an edict of 1906 re constituting the Government and foreshadowing reforms in the provinces, also extracts from proceedings of law courts, showing the nature of cases which come before foreign courts in China, reports concerning religious disturbances and regulations for opium smoking.

The author expressly states that he is describing China as she is and was, and does not deal with her future in any way. Consequently, he ignores the new Chinese Army, whilst describing the organisation of the old "banner" troops and giving the distribution of Manchu garrisons in China.

Most lucid are the explanations of the intricate official and social hierarchy, the bewildering currency systems, the *likin* arrangements, and the administration of the various foreign settlements. In each case the historical development is briefly sketched.

In dealing with the provinces the author describes the resources, natural products, and river systems of each, and gives statistics concerning trade and population.

The Far Eastern Question (La Question d'Extrême-Orient). By Edouard Driault. 391 pp. Paris, 1908. Félix Alcan. 5/10.

In spite of a few inaccuracies, this work gives an excellent and unbiassed summary of the Far Eastern Question, which the author defines as the question of the relation of the white to the yellow races.

Two chapters are devoted to the history of China and Japan in ancient times, and the remainder of the book deals with the period from the middle of the sixteenth century when the Portuguese first found their way to the Far East down to the present day. The part played by each European nation in opening up new channels for trade and missionary enterprise is clearly described, and an interesting account is given of the rise of French influence in Indo-China.

The Russo-Japanese war is considered from a political, and not from a military point of view. The author says that it is not Russia alone that has received a check in this war. England has no other ambition than to act in agreement with Japan, before whom she effaces herself. The United States are afraid that they will not easily be able to establish their supremacy in the Pacific. France has suffered some disquietude regarding Indo-China, while Germany feels herself menaced in Kiao-chou, which can no longer be looked upon as the point of departure for a great German expansion in the Far East.

M. Driault is of opinion that China is about to follow the example of Japan in assimilating Western ideas, and that soon she will be able to defend herself against all attacks. When that time comes Japan will cease to be the leading Power in the Far East, and it is probable that Korea will again become a Chinese protectorate.

The Tragedy of Korea. By F. A. McKenzie. 312 pp., illustrated. 8vo. London, 1908. Hodder and Stoughton. 6/-.

The author will be remembered as correspondent of the *Daily Mail* during the Russo-Japanese War. The present volume gives a history of the Korean question during modern times, dating from the beginning of the 19th century. It puts the information in a very readable form, giving as appendices the texts of various treaties, etc., needed to confirm statements made by the author. It is illustrated by photographs, and will repay reading by those interested in the subject.

The Problem of Acheen (Het Atjeh-vraagstuk). By J. Fanoy. 50 pages. 4to. Amsterdam, 1908. Meulenhoff. 1/8.

This brochure is an indictment of Dutch colonial policy in Acheen. The writer, a retired officer of the Dutch East Indian Army, considers that the initial mistake made was the attempt, in the years 1870-80, to compensate, by measures of extreme severity, for the want of a force sufficient to undertake the orderly pacification of the district. This ruthless policy demoralised the troops employed to enforce it, and though more humane views prevail in the army to-day, the natives have been alienated and embittered. The writer's solution of the problem is to re-establish the Sultan of Acheen as a real power, under Dutch protection, and to govern the country, through its own rulers, in the interest of the inhabitants, with the assistance of a native force commanded by Dutch officers. The brochure also contains some interesting character sketches of high officers of the Dutch East Indian Army.

NAVAL.

The Admiralty of the Atlantic: An Enquiry into the Development of German Sea Power, Past, Present, and Prospective. By Percival A. Hislam. 209 pp., with maps and illustrations. 8vo. London, 1908. Longmans, Green. 6/6.

In his preface, the author of this book says that he has endeavoured to steer between the two prominent schools of thought, *i.e.*, between the naval reductionists and those who exaggerate the strength of the German fleet and belittle the strength of their own. He declares himself "actuated throughout by the conviction that the rise of German sea power is a factor in international politics which England can neither with safety ignore nor with dignity overrate, and firm in the belief that it would be better to sacrifice our dignity rather than our safety."

He, then, in his first two chapters relates the history of the inception and development of the German fleet, and gives extracts from the speeches of such authorities as the Emperor himself, Admiral von der Goltz, and Admiral von Tirpitz, to show what is the object of the extraordinary efforts of the German nation and Government during the past ten years to create as soon as possible a powerful fleet. Admiral von der Goltz pointed out how Great Britain was compelled to scatter her forces all over the world while "the German fleet, though much smaller, can remain concentrated in European waters."

The next two chapters are devoted to a consideration of the German navy of to-day and to a comparison of that navy with the British. This comparison, with the exception of fast protected cruisers for fleet work and of torpedo craft, shows the superiority of the British fleet at present, but it also shows the rapid progress made by the Germans in recent years, and in the next chapter the author demonstrates how the Germans can build as fast as we can.

Mr. Hislam then considers the question from the point of view of the relative strengths of the two nations in the North Sea, and finds that the Nore Division of our Home Fleet is inferior to the German Active Battle Fleet, while he questions the policy of having a base at Borehaven.

The author then proceeds to a review of our naval bases, and lays great stress on the importance of the Nore, for "defensively it is situated at the most important point of commercial concentration in the United Kingdom, and . . . . the status of the Nore from an offensive standpoint is no less important." He deplores the waste of money at Dover, and has but cold encouragement for Rosyth. From this point the author turns his attention to German naval bases, and shows how the geographical position of Germany acts to her detriment and to our advantage, and he considers that our forces should be so disposed as to enable us to close the passages (of the Straits of Dover or of the Shetlands) at an hour's notice. After some remarks on floating docks, of whose advantages Mr. Hislam is well persuaded, he passes to a chapter entitled, "The Invasion of England." In this chapter he points out that an invasion of England from Germany is quite within the bounds of possibility, unless there should be always a British fleet in the North Sea capable of demolishing the naval force which Germany maintains in those waters, and unless our fleet should be maintained in a state of perpetual readiness. From a consideration of British shipbuilding policy, the author demonstrates again our inferiority in torpedo craft, and he estimates that we ought to build at least seventeen yearly to keep pace with Germany.

The book concludes with a brief survey of the navies of a few other Powers, viz., France, United States, Japan, Russia, Italy, Austria-Hungary, Spain, and Brazil.

Taken as a whole, the book is decidedly worth reading, for it avoids extremist views in any direction and puts the facts before its readers in a clear and concise fashion. It will be of greater interest to the officers of the Navy than to those of the Army, but any book which deals with questions affecting the defence of these islands and with our power of offence should be studied by all who are interested in the military profession.

The War of 1908 for the Mastery of the Pacific (Der Krieg von 1908 um die Vorherrschaft im "Stillen Ozean"). By "John Crabapple." 38 pp. 8vo. Berlin, 1908. Gustav Rieckes Buchhandlung. 6*d*.

In the introduction the author predicts an early rupture between Japan and the United States, and he proceeds to narrate how this will come about, and what the results will be.

A flying Japanese squadron attacks the United States Atlantic Fleet shortly after the latter leaves Honolulu for San Francisco, *en route* for Manila. The remnant of the fleet reaches San Francisco in a crippled state. In the meanwhile Japan has captured Manila, and matters look as though the United States must sue for peace. The Japanese immigrants fly to Canadian territory, and Canada, in consequence, brings pressure to bear on the mother country to abandon the unnatural Anglo-Japanese alliance. War-ships are now bought by the United States from European Powers in the name of the Panama Republic, and finally, a formidable fleet of some twenty eight ships having been collected by the United States, peace is brought about through the medium of Great Britain. By the terms of the treaty Japan hands back the Philippines to the United States, and also the whole of her navy; she further undertakes to build no war-ships for ten years.

Germany having sold six obsolete battle-ships to the United States, the Kaiser telegraphs to Mr. Roosevelt his congratulations on having brought the war to a successful conclusion with their help.

Naval Warfare (Der Seekrieg). By Vice-Admiral Freiherr von Maltzahn (retired). 120 pp. 8vo. Leipzig, 1906. Teubner. 1/3.

The little book is a popular work on naval warfare, and throws a fair and comprehensive light on naval warfare generally and its development from 1500 A.D. down to the present day. Its effect on international history is also discussed. The naval policy of Germany is dealt with, and the author endeavours to show, without in any way treading on British corns, that this policy is merely to break down command of the sea by an individual Power, and to substitute for it a general control of maritime states with a view to maintaining "armed peace at sea."

Impending Naval Wars (Les Luttes Maritimes prochaines). By A. M. Laubeuf, late Chief Naval Engineer. 49 pp. 8vo. Paris, 1908. Librairie Maritime et Coloniale. 1/6.

This small volume, or rather pamphlet, is devoted to a consideration of possible conflicts between Japan and the United States for the mastery of the Pacific, and between England and Germany for the domination of European waters. The author is of opinion that the former will be a purely naval war of short duration, terminating with the retention of Hawaii by the United States, or its capture by Japan.

With regard to the latter, the author points out that Germany has hitherto been unable to reduce England's lead in naval construction, and that she will therefore, rely on submersibles to redress the balance of armament, and to pave the way for an invasion. England is to anticipate such action by a sudden descent on the German navy without a declaration of war.

The somewhat bloodthirsty conclusion is that England, having accounted for Germany, will fall upon the victor of the struggle between the United States and Japan, and thus ensure world-wide command of the sea for another fifty years.

CAVALRY.

1. *The French Cavalry from 1740-1789.*
2. *The French Cavalry during the Revolution (1789-1794).*
3. *The French Cavalry during the Revolution (1794-1795).*

(1. La Cavalerie de 1740 à 1789.

2. La Cavalerie pendant la Révolution (du 14 Juillet 1789 au 26 Juin 1794).

3. La Cavalerie pendant la Révolution (du 19 Juin 1794 au 27 Octobre 1795).)

By Commandant Desbrière and Capt. Santai.

(1) has 139 pages, with 1 map. 8vo. 2/6.

(2) has 442 pages, with 7 diagrams and 8 maps. 8vo. 8/4.

(3) has 251 pages, with 20 sketches and diagrams. 8vo. 5/-.

Paris, 1908. Berger-Levrault.

These three volumes have recently been published by the Historical Section of the French General Staff. They are well written, and contain a good deal that is of value to cavalry officers. The story of the organisation of the French cavalry during the Revolution is especially interesting, showing as it does the many difficulties encountered by the authorities in the creation of a new army.

The 3rd volume also affords very strong proof of two facts, the truth and importance of which will remain the same through all ages, viz.: (1) Good cavalry cannot be improvised, but require long and careful training. (2) Good and numerous cavalry are necessary for success in war.

The Training of the German Cavalry for War (Le service en campagne dans la cavalerie allemande). By P. S. 71 pp. 8vo. Paris, 1907. Berger-Levrault. 1/3.

This book as a study of German cavalry tactics, with the object, not necessarily of imitating them, but of gaining acquaintance with the methods of a possible enemy. Two books which have recently appeared in Germany, one by Colonel Maltzahn, a cavalry brigade commander, and one by Captain Rossbach, an infantry officer of the General Staff, are selected for discussion. Colonel Maltzahn deals with the training of the cavalry soldier, especially in reconnaissance work. The author considers the instruction in the French Army is not less sound in principle, but less thorough and painstaking than in Germany.

Captain Rossbach insists that the task of screening the movements of one's own army, and that of gaining information of the enemy, can never be performed by the same body of cavalry. For the latter purpose, a bold offensive by large masses of cavalry, moving closely concentrated and breaking through all resistance, is the simplest and most effectual method.

Small patrols, penetrating far within the enemy's cavalry screen, were often successful in 1870, owing to the passive attitude of the French cavalry. But such conditions will not recur. On service, the difficulty of transmitting the information thus gained will be insurmountable. The achievements of these small patrols at manœuvres are misleading, and may induce commanders, in war time, to wait for more complete information before acting. If small patrols are used, they must be closely followed up by stronger bodies.

The whole theme of Captain Rossbach's book is that the offensive is the only legitimate *rôle* for cavalry, and that for this purpose the lance is a weapon superior to the sword. (The question of fire action is scarcely referred to.)

The author concludes that in Germany, as elsewhere, cavalry is feeling the difficulties due to modern armament, smokeless powder, etc., but that there is no tendency, as in France, to doubt the value of the arm, or to suggest its replacement by cyclists or mounted infantry. He deplores the tendency, in France, to rely on what he terms "tactical ju-jitsu" against the resolute offensive of masses which he foresees will have to be encountered in a future war with Germany.

The Question of Two Years' Service for Cavalry (Ueber die zweijährige Dienstzeit bei der Kavallerie). By Colonel Alexander Sieg (retired). 27 pp. 8vo. Berlin, 1908. Vossische Buchhandlung. 9*d*.

The writer opposes strongly, in this pamphlet, the question of the service in the German cavalry being reduced from three to two years. He points out the hopelessness of being able to train a cavalry soldier in the reduced period, and gives a brief sketch of the principles on which the systematic training of the German trooper and horse is carried out year by year in the present period of service. His chief argument is that since it takes two years to teach a man to ride, there will be nobody to train the remounts, which are always ridden by the three years' men.

Cavalry Pioneer Regulations (Kavallerie Pionervorschrift). 202 pp., with numerous diagrams. 12mo. Berlin, 1907. Mittler. 1/4.

This book, which replaces the edition of 1893, was approved in October, 1907, but not issued till March, 1908. Though primarily for the technical instruction of the cavalry arm, it is to be studied by mounted artillery and machine-gun detachments, especially as regards the crossing of rivers and the training of horses in swimming. The arrangement of the book is in three parts:—Part I. General instructions; Part II. Demolitions; Part III. Crossing of obstacles.

Part I. brings out the increased importance of cavalry pioneers, and the wide scope of the duties required of them. These include interruption of railways, telegraphs, and navigable waterways; crossing of all kinds of obstacles; the putting of localities in a state of defence: preparation of camping grounds; and the construction of ramps.

The chief innovation is the new steel pontoon in two sections, which may be used separately or united to form a complete pontoon. Four such sections are carried by each cavalry regiment in two special vehicles. A high degree of skill is, however, demanded in improvising bridges, though it is recognised that cavalry pioneers cannot attain the efficiency of pioneer battalions in this respect.

ARTILLERY.

French Field Artillery Regulations (Règlement de manœuvres de l'artillerie de campagne). French War Office publication. 2 vols. 570 pp., with numerous diagrams and illustrations. 8vo. Paris, 1907. Chapelot. 3/4 for the two parts.

The French Field Artillery Regulations of 1907 are slightly longer than those of 1903, but contain no important innovations as regards principles. Whilst the alterations consist chiefly of more detailed instructions and minor additions, there are a few changes which are worthy of note.

With reference to *matériel*, a new feature has been introduced, in that the weights of the gun carriage, limber, wagon, etc., are attached to the diagrams. It appears that the weights of shrapnel and common shell are now different, the former exceeding the latter by about 4 lbs.—approximately 16 and 11¾ lbs. respectively. The weight of the gun, limbered up and carrying three gunners, is about 2,100 kilogrammes (42 cwt.), whilst that of the wagon amounts to approximately 2,500 kilogrammes (50 cwt.), a heavy load.

An alteration has been made in the elevating gear, by means of which it has become possible to elevate or depress the gun at angles of 23 degrees and 17 degrees respectively—a useful modification, especially for employment against air-ships or in mountain warfare.

The horse artillery batteries have been supplied with 75-millimetre guns, so that horse and field artillery have now the same armament; the new regulations contain no mention of the 80-millimetre gun.

The new instructions with regard to "laying" are more detailed, and it is directed that, when it is necessary to employ auxiliary marks, the aiming posts should be placed in front of the guns. The sections dealing with the "parallelism of the guns" and "laying" when a battery is in a position of observation have been re-written, and are now very clear and concise.

No change has been made in the rules for firing, which have now been in force for six years. The 1907 regulations include, however, three new examples of fire, all of considerable interest.

The corps artillery will in future consist of four "groupes" (11 batteries, 9 field and 2 horse), divided into two "fractions," each composed of two "groupes"; these "fractions" to be under separate commanders, taking their orders direct from the G.O.C. the Artillery of the Army Corps. Thus a French Army Corps of two divisions (6 batteries per division) will theoretically always have 23 batteries (92 guns) until the introduction of the new organisation, by which a further considerable increase will probably be made. The above arrangement will obviously facilitate the allotment of corps artillery to infantry divisions, when considered desirable.

The alterations introduced as regards the tactical employment of the artillery are comparatively insignificant; they consist principally of modifications of text made with a view to the attainment of greater clearness and conciseness, and involve no change of principle. The following is the most noteworthy innovation:—Whilst it is still laid down that the artillery of the attack are to cease fire when their infantry get within 500 metres of the hostile position, the new regulations state that favourable circumstances (*e.g.*, sloping ground) may permit of the fire being kept up much longer.

Exercises for the Field Training of a Brigade of Artillery (Les exercices de service en campagne dans le groupe de batteries). By Captain G. Aubrat, French Artillery. 590 pp., 62 diagrams and sketches, 2 maps. 8vo. Paris, 1907. Berger-Levrault. 6/-.

The author is a firm believer in constant practice and instruction in time of peace; he urges that the conditions of war are so much more difficult than those of peace, that very careful training is necessary in order to accustom officers and men to all the numerous and varied situations, which they may be called upon to face. In the stress of battle they are unlikely to keep cool and act correctly unless such correct action has become second nature to them as the result of constant practice and teaching. The author asserts, very truly, that the duty of officers all through their service is to train their minds in such a way that in time of battle they will act rightly by a sort of instinct. They must, therefore, neglect no opportunity of preparing themselves for future war, by means of study, discussions, lectures, exercises, manœuvres, etc.

The object of this book is to provide a number of problems dealing with every kind of situation in which artillery may be required to act. The exercises have been drawn up for the use of a brigade of artillery, and include marches, billets and bivouacs, reconnaissance and occupation of positions, fire practice, changes of position, and replenishment of ammunition.

These problems and exercises have been carefully elaborated, and their solutions are discussed and criticised. The work covers a good deal of ground, and should be of considerable use to aid brigade commanders in the training of their commands.

The Mechanism of Gun Carriages (Mécanique des affûts). By Capt. J. Challéat, of the French Artillery. 380 pp., 98 diagrams. 8vo. Paris, 1908. Octave Dion. 4/-.

This volume forms part of the scientific encyclopædia published under the direction of Dr. Toulouse, and of the Library of Applied Mechanics and Engineering.

Captain Challéat has revised and completed the treatises published by him in the "Revue d'Artillerie." The work is entirely technical, but the author has done his best to place it within the reach of comparative novices by means of clear and careful explanations. There is an interesting discussion on the question of the stability of the gun-carriage, the length of recoil, and the weight of the carriage. The necessity of combining theoretical research with practical experience is very evident from a perusal of these pages.

The book has met with a favourable reception on the Continent, and the esteem in which it is held is shown by the fact of its inclusion in Dr. Toulouse's "Scientific Encyclopædia."

The Training in Laying and Shooting of the Field Artillery (Die Richt und Schiessausbildung der Feld Artillerie). By Major von Landauer. 131 pp., with 19 diagrams in text. Berlin, 1908. Vossische Buchhandlung, Militärverlag. 3/-.

The book deals with the question of instruction in the employment of laying adjuncts in use with the '96 n/A field gun and '98 field howitzer equipments, the training of the layer, and the fire control and tactics of the field artillery.
Forty useful examples of ranging are given at the end.

The Harness and Saddlery of the Austro-Hungarian Artillery. Vol. II.: Mountain Batteries (Vorschrift über das Reitzeug und die Beschirrung für die k. u. k. Artillerie. 2. Heft: Gebirgsbatterien). 135 pp., with numerous plates in a separate volume. 8vo. Vienna, 1907. Official publication. 2/8.

This official publication contains a full description and excellent illustrations of the pack-saddlery in use in the Austro-Hungarian mountain artillery.

Handbook for the Austro-Hungarian 8-cm. Field Gun, Model 1905 (Skizze über die Einrichtung und Leistung der 8 cm. Feldkanone M. 5). 80 pp. and 4 plates. 8vo. Vienna, 1907. Official publication.

This handbook contains a full description of the new quick-firing field gun with which the Austro-Hungarian field artillery is now being re-armed.

Additions to Drill Regulations for Field Artillery, U.S. Army. Parts IV.—VI. 31 pp. 12mo. Washington, U.S.A., 1906. Government Printing Office.

Part V. contains details of the service of information and communication. The United States attach great importance to mechanical means of transmission, and their artillery units are amply equipped with telephones, etc. It may be noted that they apparently contemplate direct communication between the batteries and the firing line by means of artillery reconnaissance officers pushed to the front. Part VI. deals with the selection of position, and, though laying down no hard and fast rules, emphasises the advantages of dispersion and of concealment.

Rifled Shrapnel filled with Elongated Bullets (Gezogenes Schrapnel mit Langgeschossfüllung). By Major-General R. Wille. 45 pp., with 15 diagrams in the text. 8vo. Berlin, 1908. Eisenschmidt. 1/10.

The author suggests a remedy for the waste of space in a shrapnel filled with spherical bullets. This is to take the form of a shrapnel, in the interior of which is inserted a system of rifled cylinders, each containing elongated bullets, the noses of the lower ones fitting into the bases of the ones above. A variation of construction is where the bullets are secured on a wire passing through their longitudinal axis. The explosion of the bursting charge, situated in the base, causes the bullets to take the rifling in the cylinders.

STRATEGICAL AND TACTICAL.

Notes on Preparation for the Attack by a Company of Infantry (Quelques aperçus sur la préparation au combat d'une compagnie d'infanterie). By Captain Jette, French General Staff. 70 pp., diagrams and maps. 8vo. Paris, 1907. Berger-Levrault. 2/-.

This work is intended mainly for infantry officers, but is of interest for all branches of the service, as it deals with the co operation of all three arms. General Langlois has contributed an introduction, in which he sketches the main principles and teachings emphasised by Captain Jette, *e.g.*, the necessity of advanced guards for small as well as for large forces; the inadvisability of opening infantry fire at long ranges; the superiority of the *rafale* system; a judicious combination of fire and progression in the attack, the former being merely a means of rendering the latter possible; the cult of the bayonet, the symbol of resolute purpose; the spirit of the offensive, mutual support, initiative, vigour, energy, and a determination to conquer; lastly, the harmonious co-operation of all three arms.
This small book is ably written in a clear style, and in French which is easy to read; the views put forward are practically entirely in accordance with our own ideas, and are supported by logical and convincing arguments.

The Employment of Detachments and the Service of Reconnaissance in the Campaign in the East of France (1870-71) (La couverture au cours de la campagne de l'Est (1870-71)). By Captain S. Bourguet, French Artillery. 60 pp., with 13 sketches and diagrams. 8vo. Paris, 1906. Berger-Levrault. 1/8.

This little brochure deals with one of the later campaigns in the Franco-German War (between Bourbaki and Garibaldi on the French side, operating against Werder and Manteuffel), a campaign which hardly receives sufficient attention in this country, though it presents features of particular interest for Englishmen.

The author has brought out certain points very clearly, *e.g.*, the necessity of adequate reconnaissance, and the impossibility of carrying this out with any but the very best cavalry; the unreliability of imperfectly trained artillery; the inability of partially-trained troops to contend with a highly-disciplined enemy; the uselessness of holding attacks unless they are executed with vigour and resolution; the importance of mutual co-operation; the value of initiative, energy, and determination, as shown by the way in which the German General Kettler handled his weak detachment in the operations near Dijon against the greatly superior forces under Garibaldi.

This campaign resulted in the neutralisation in Swiss territory of about 80,000 French troops, a disaster almost as great as that of Sedan. This calamity occurred, moreover, at a most unfortunate time, as its effect was to discourage the French, and to blight their hopes, now beginning to rise in consequence of the wave of patriotism which had spread over the country, and as a result of the energetic and partially-successful operations of Chanzy and Faidherbe.

Contact Detachments on the Defensive and on the Offensive (Les détachements de contact dans défensive, l'offensive et la couverture. Etude tactique et historique). By Captain F. Culmann, of the French Artillery. 70 pages and 3 maps. 8vo. Paris, 1907. Berger-Levrault. 3/4.

The term "détachements de couverture" has long been known to us, and is in frequent use in our language to denote strategic advanced guards, or detachments whose mission it is to screen the dispositions or movements of the main army. Here the expression has been changed to "détachements de contact," in accordance with the wishes of General Langlois, with the intention of emphasising the offensive character of the *rôle* devolving on these detachments.

With the object of showing the difficulties which attend the employment of "détachements de contact," and with a view to laying down principles for future guidance, Capt. Culmann has called in history to his aid, in the shape of Von Werder's operations against Bourbaki in January, 1871. He has taken the action of the German covering detachments as a model, although these were very greatly favoured by circumstances; the French troops were little better than territorial levies, of vastly inferior value to their well-trained and well-led opponents; they had little confidence in their leaders or in themselves, and their *moral* was bad. It was in artillery that the French showed the most marked weakness and inferiority; the author brings out very clearly the impotence of the inadequately trained French artillery, showing that in the fighting near Arcey, on 13th January, 1871, three German batteries were able to oppose a successful resistance to no less than eighteen French batteries, whose training had, of course, been hasty and imperfect. Captain Culmann also points out the small value of the raw French levies for offensive purposes; like all improvised troops, they preferred firing at long ranges to advancing to close quarters.

Whilst laying stress on the advantageous conditions under which they fought, Captain Culmann accords great praise to the Germans for their operations on 13th January; they had little difficulty in breaking off the combat at the required moment, owing to the want of dash displayed by the French and the slowness of their advance. So successful was the action of this covering detachment that six German battalions caused the deployment of six French divisions, and delayed them for practically an entire day, whilst losing fewer men, a very striking example of the relative value of trained and partially trained troops.

On the other hand, the author expresses the opinion that the breaking off of an action by daylight against good troops under a resolute leader will be practically impossible in the future, except at the price of a severe defeat. He utters a warning against the occupation of houses by troops intending to withdraw, instancing the fact that the only German troops captured on 13th January, 1871, were taken in houses.

After describing the course of the fighting on 13th January, Captain Culmann proceeds to enumerate the lessons to be drawn therefrom, and to deduce principles for our guidance in the future. He discusses the true *rôle* of detachments of all three arms, dealing with the cases of rearguards and of advanced guards; with offensive as well as defensive action. He brings his valuable little volume to a conclusion with a brief chapter on the employment of strategic advanced guards and the use of detachments.

Advanced Guards (Essai sur les Avant-Gardes). By Captain N. Coucke, of the French General Staff. 105 pp., with diagrams. 8vo. Paris, 1907. Berger-Levrault. 1/8.

This is a useful little volume, showing very clearly the French conception of the *rôle* of an advanced guard. It examines the duties of the commander of an advanced guard in various situations, the strength and composition of his force, the parts played by the different arms, and their co-operation in action. The author treats

the question of the protection of an army on the march, both at a distance from and in close proximity to the enemy. He also discusses the use of a general advanced guard to an army, as opposed to the system of employing advanced guards for each column.

The book abounds in comparisons between French and German methods, and as such is of considerable interest; it deals with the regulations of various countries on the subject, and gives details regarding the system of forming advanced guards. It is written in easy French, is of a handy size, and is well worth reading.

Two Days of Manœuvres: Infantry and Cyclists in Co-operation with a Cavalry Division (Deux journées de manœuvres. Infanterie et cyclistes en liaison avec la Division de cavalerie). By Major P. Nudant, commanding the Artillery of the 4th Cavalry Division; with notes by General H. Langlois. 35 pages, 2 maps. 8vo. Paris, 1907. Berger-Levrault. 1/3.

This little volume gives an interesting account of the operations of a battalion of infantry and a company of cyclists in conjunction with the 4th Cavalry Division during two days of manœuvres. It shows how useful infantry can be in supporting cavalry in action, and in covering their retreat.

The numerical superiority of the German cavalry to that of their western neighbour has now become so considerable that the French are endeavouring to devise some means of dealing with this serious danger. They propose to support their mounted troops by infantry and cyclists, apparently mainly by the former. In the operations described by Major Nudant, the infantry certainly rendered good service; in spite of this, however, it is difficult to believe that any reliance can be placed on infantry support when the action of cavalry extends over a considerable area. Infantry move too slowly to be of any real use to cavalry, save in exceptional circumstances; the practice of normally associating infantry with cavalry is vicious and dangerous, and is certain to result in loss of mobility on the part of the cavalry. The question of co-operation of cyclists with cavalry is, however, a very different matter. Cyclists require no food or rest for their machines; they can move more rapidly than cavalry, and in European warfare the roads are so good and numerous that they enjoy considerable freedom of movement; their fire action is very great, and is not diminished by the necessity of detaching horse-holders. It is, of course, absurd to suggest that cyclists should be used as a substitute for cavalry. It is merely proposed to employ them as a means of supporting the cavalry, and to enable the latter to develop their full power of action; the best method of meeting this question would be by an increase to the strength of the cavalry: financial considerations have, however, rendered this impracticable in France, whilst, in England, similar reasons compel us to maintain our cavalry force at a very low establishment.

General Langlois adds some valuable remarks to Major Nudant's brochure. He attaches great importance to the support of cavalry by cyclists, whilst deprecating the employment of infantry for this object. He recommends the attachment of at least one battalion of cyclists to each cavalry division, enumerating the following important duties which they would be capable of performing: service of security, thus resting the horses; employment as orderlies, thus enabling the cavalry units to be kept intact; support of cavalry whilst manœuvring and during shock action, by means of fire, covering the retreat of cavalry after a charge, etc.; guarding the flanks of vulnerable points, *e.g.*, bridges, etc. A great advantage in the employment of cyclists would be that they would frequently save the cavalry from the necessity of resorting to fire tactics, thus setting them free to manœuvre and to adopt shock action.

Siege Warfare, and the Manœuvres round the Fortress of Langres in 1906 (Étude sur la guerre de siège, et la manœuvre de forteresse de Langres en 1906). By Lieut.-Col. Klein. 86 pp., one map. 8vo. Paris, 1907. Berger-Levrault. 2/6.

In 1906 the French introduced a new departure from their ordinary manœuvres by practising an attack on the large fortified camp of Langres, an innovation the advisability of which was probably suggested by the siege of Port Arthur. The experiment proved a decided success, and the various mistakes showed the importance of gaining experience in this difficult branch of the art of war.

Lieut.-Col. Klein has given us an interesting description of the operations, with useful notes on the duties of the different arms of the service, both in attack and defence. He draws attention to the trying nature of the work involved, and points out the necessity of employing highly trained troops in the siege of fortresses, showing how, in spite of all improvements in modern firearms, the human element is still omnipotent.

Studies of War, Part III.: Strategy, 7th Number (Studien über den Krieg, Dritter Teil: Strategie, Siebentes Heft). By Gen. of Infantry J. v. Verdy du Vernois. 221 pp. with 4 maps. 8vo. Berlin, 1908. Mittler. 5/5.

This is one of a series of publications by the same author, which have been presented to the public under the main title of "Studies of War." Parts I. and II., in three numbers each, dealing with "The Situation on the Frontier (15th July to 2nd August, 1870)," and "Plans of Operations," respectively, together with the first six numbers of Part III., have already appeared.

The particular number under review deals with the "Strategical Surprise" (Strategischer Ueberfall), and such well known instances of the defeat in detail of

superior forces, prior to concentration, by an inferior force, as in Frederick the Great's campaign of 1757, the campaigns of 1800 in Italy and Germany, Napoleon's 1814 campaign on the Marne, the Waterloo campaign, the Austrian offensive in 1859, and the commencement of the Russo-Japanese War in 1904, are cited and discussed.

The author also deals briefly with Moltke's well-known "Memoirs" on the subject, and he devotes a final chapter to his own conclusions.

The Battle: A study based on the War in Eastern Asia, 1904-5 (Die Schlacht: Studie auf Grund des Krieges in Ostasien, 1904-5). By Maximilian Csicserics von Bacsány, Col. of the Austrian General Staff. 113 pp., 5 maps. 8vo. Vienna, 1908. Seidel. 3/4.

The author, who accompanied the Russian Armies during the late campaign in the Far East, discusses the leading of modern armies in battle in the light of the impressions gained by him during the great battles in Manchuria at which he was present.

The size of armies, their armament and supply, have so altered of late years that the experiences of the wars of the 19th century are no longer a sufficient guide; it is impossible, he says, that such changes should have occurred without reacting on battle leading.

The most striking features of the fighting in Manchuria were the very wide fronts occupied by the opposing forces, and the long duration of the battles. Col. von Csicserics examines the circumstances affecting these two features, and indicates some of the lessons which may be learnt from them, apart from the character of the combatants and the peculiar topography of the theatre of war.

An interesting and instructive chapter deals with the question of the army reserves, their formation and handling.

A Comparison of Japanese and Russian Attacks in the War of 1904-05 (Сравнительное изслѣдованіе Японскихъ и русскихъ атакъ въ войну 1904-05). By Capt. I. Shevtsov, Russian General Staff. 61 pp. 8vo. Warsaw, 1907. Ofitserskaya Jizn. 2/3.

A short examination of the methods pursued by the Japanese and Russians in the infantry attack, illustrated by examples from various battles. Although the war is still too recent to permit of a full and detailed tactical study of its actions being made, the pamphlet is interesting and instructive in so far that it draws broad comparisons, and shows how adherence to or departure from certain tactical principles led, as a rule, to success or failure. The author attributes Russian tactical failures to the poor mental development and the absence of sense of duty in the Russian soldier, want of initiative on the part of junior commanders, and universally defective tactical training, while with the Japanese these conditions were reversed.

Machine Guns, in France and in Foreign Countries (Les mitrailleuses à l'étranger et en France. Leur développement—leur organisation—emploi des mitrailleuses). By Lieut. Boullé, 1st Regiment of Zouaves. 60 pp., 3 diagrams. 8vo. Paris, 1908. Lavauzelle. 1/-.

This volume gives a short account of the machine guns in use by the various Powers, and the methods of their tactical employment. It describes the organisation adopted in each state, and traces the return of the machine gun into favour, after the campaign against it resulting from the war of 1870-71.

The author then proceeds to discuss the future tactics of machine guns, with especial reference to their employment in sections of two guns, as in France and Great Britain, or in batteries of six guns, as in Germany. He is strongly in favour of the use of small sections, and adduces the following arguments in support of his opinion: that machine guns must be used in close support of infantry; that their value is mainly dependent on their comparative invisibility; that this invisibility is sacrificed by grouping a large number of guns together; that small sections can make better use of cover; that they are more likely to be able to develop converging fire against the enemy; that they can more easily support their infantry in the assault.

He enumerates various uses to which machine guns can be put, *e.g.*, with cavalry, especially to provide fire effect, and to prevent horsemen from being obliged to dismount; to guard against surprise, and to act as a support during a reconnaissance; with flank guards, and for holding important points; with advanced guards, particularly in the opening stages of a *bataille de rencontre;* for delaying action with rear guards; to repel counter attacks; to be hastily brought up to maintain captured positions; to harass the enemy in retreat; on the defensive, against night attacks, etc.

The author inveighs against the practice of immobilising machine guns by incorporating them with formations, where their use may be temporarily impossible, and urges the importance of employing them, like artillery, for the common use of the army, and not keeping them idle with the reserve, or with troops operating over unsuitable ground. At the same time, machine guns must not be placed under the direct orders of the Commander-in-Chief, who has already enough to look after, and would not be in a position to employ them with sufficient rapidity, and in the close support of infantry, which is so essential; they must be under the control of officers commanding smaller formations, *e.g.*, regiments in France (three battalions), and brigades in England. Finally, Lieut. Boullé insists upon the importance of looking at machine guns in a true perspective; they form a most useful weapon, in their proper place, to support and strengthen other arms; the fatal mistake is, like the French in 1870, to treat them as a substitute for artillery, and to attempt to use them as such.

Contact. A Study of Modern War (Le Contact. Etude de guerre moderne). By Gen. Izzet-Fuad Pasha, of the Turkish Army. 100 pp., with sketches and diagrams. 8vo. Paris, 1907. Chapelot. 2/6.

Gen. Izzet-Fuad owes his military education to France, with the result that his writings bear the impress of the French school of thought; at the same time, however, he is an intimate friend of Gen. Von der Goltz, and is thoroughly acquainted with German ideas and principles. Whilst avowing his preference for the practical soldier as opposed to the theorist pure and simple, the General emphasises the value of study as a necessary preparation for modern war.

The author is a strong believer in the importance of a numerous and well-trained cavalry, and is of opinion that the improvements in modern weapons have but added to the scope of the mounted arm. In connection with cavalry, he deals with the following points: the employment of armoured motor-cars as scouts, working in conjunction with the mounted troops; the attachment of general staff officers to independent and army cavalry; the value of a good system of cavalry reconnaissance; the importance of an efficient service of transmission of information from the reconnoitring cavalry—cavalry orderlies to be used as little as possible, messages to be sent by wireless telegraphy, telegraphs, telephones, motor-cars, motor bicycles, cyclists, and pigeon post; reconnaissance in depth, illustrated by diagrams.

Gen. Izzet-Fuad points out the necessity of information in order to get contact with the enemy, and the difficulty of keeping contact; he shows that after contact has been obtained, victory will usually rest with the most skilful leader and the best trained troops, but that much will depend on the possession of accurate and detailed information; he discusses the action of cavalry in the pursuit of a beaten army, and the importance of never losing contact, whilst acting with the utmost vigour and energy, and neglecting no opportunity of delaying and harassing the enemy, and of thus completing his demoralisation. He emphasises the importance of discipline and of a sound military education.

The Service of Security and Information. By Colonel A. L. Wagner, U.S. Army. 244 pp., with index and 17 plates. 8vo. Kansas City, U.S.A., 1903. Hudson-Kimberley Publishing Co. 6/-.

The late Colonel Wagner was long recognised as one of the rising soldiers of the United States Army. The present work has gone through thirteen editions, and has been adopted as an official manual of instruction. As is stated in the preface, it was written after much study of the leading European authorities, and, consequently, it contains little, if anything, that is not to be found in our own manuals. Nevertheless, it is so well and brightly written, and the principles are so appositely illustrated from history, that it is worthy of a place in any military library.

TRAINING AND EDUCATION.

Staff Rides and Regimental Tours. By Col. R. C. B. Haking. 495 pp. 8vo. London, 1908. Rees. 8/6.

Col. Haking has had a large and varied experience of Staff Rides, and we have here the result of that experience, which will doubtless be of great use to the many officers who have felt the want of a book which could serve as a guide to them, both in the preparation of a scheme and in the subsequent conduct of a Staff Ride. After perusing this volume it will be conceded that the author has succeeded in producing a book which will serve the purpose indicated above. This book is intended to deal with Staff Rides held by Divisional and Brigade Commanders and with Regimental Tours, and is not concerned, the author says, with very large Staff Rides, and he draws a distinct line between Staff Rides for the instruction of Staff officers and Regimental Tours for Regimental officers. Col. Haking goes deeply into the question of the preparation of schemes, and gives many instances from military history which may be used. These instances may be useful to Directing Staffs, and may give them an indication as to campaigns and situation which they should study when working out a scheme.

From the preparation of schemes, Col. Haking passes to a chapter on the method of directing a Staff Ride, wherein is contained a number of hints which will doubtless be of great value to officers who have not had much experience in the matter.

Single Staff Rides are then dealt with, and Staff Rides for practising operations against semi-civilised or savage races, and examples of problems suitable for Staff Rides, with instructions for reconnoitring officers.

The next chapter deals with the method of preparing narratives, and in this connection Col. Haking remarks, "It is most important that officers should not be allowed to do things on a Staff Ride which they would not even suggest in real war . . . . during a Staff Ride it is best to assume the most difficult situation in each case"; and in the next chapter on criticisms he says, "The object of criticising the work is . . . . simply to inculcate sound principles of strategy, tactics and administration."

We then have chapters on the work done by officers during a Staff Ride (Appreciations, Orders and Instructions, Reports, Sketches, etc.), on Regimental Tours, on the conduct of Tactical Exercises on the ground and on one-day exercises, and finally a short chapter on War Courses.

The value of this book will be great to all who are conducting Staff Rides, and also to those taking part in them, and Chapters XVII., XVIII., XIX., and XX. will be of especial interest to commanding officers who are responsible for the training and education of their officers. It will supply a want, and it inculcates the principles of the training manuals which, as the author says, should be the "sheet anchor" of officers.

Tactical Exercises and War Games (Thèmes tactiques et Jeu de la Guerre). Translated by Capt. Corteys, of the 140th Infantry Regiment. 212 pp., with 3 maps. 8vo. Paris. Lavauzelle. 4/-.

This useful volume, which is translated from the German, is divided into two parts. The first part deals with the framing and solving of tactical exercises, and is valuable on account of the clear insight it affords into German tactical and strategical ideas, and into their school of thought. General Litzmann, the author, was formerly Commandant of the Berlin Staff College, so that his views and teachings are of considerable value. We see throughout the value attached by the Germans to the spirit of the offensive, the initiative, mutual co-operation, rapid decisions, and the determination to conquer at all costs. It is brought out very clearly that the Germans prefer rapid decisions and energetic action, even if not absolutely the best possible means of dealing with a situation, to hesitation, indecision, and inaction. The problems propounded are of value as a set of well thought out exercises, whilst the solutions are carefully argued and contain useful lessons.

The second part deals with war games, and gives various rules for their conduct. It also describes a series of exercises drawn up for young officers, and shows the methods to be adopted in the case of novices at this work, as well as those for more senior officers. A feature of the German system is the way in which these games may be directed by officers junior to numbers of the participants; though Gen. Litzmann urges the points in favour of this system, its success would appear to demand very great tact on the part of the director.

Letters on Applied Tactics. By Col. Griepenkerl. Translated by R. Maxwell. Brought up to date by K. von Donat. 498 pp. 8vo. London, 1907. Rees. 8/6.

This is the fifth edition of the excellent translation of the well-known studies of tactical exercises, worked out by Col. Griepenkerl.

The twenty-four problems selected deal with small detached forces of all arms, and are worked out with great detail and thoroughness.

The book is accompanied by five very good maps of the country round Metz, which is the district in which the imaginary operations take place.

For the benefit of British officers studying for the Staff College or for promotion examinations, the translator deals with British Army units corresponding as nearly as possible to those of the German Army in the original; and calculations of time and space have been amended in accordance with Combined Training, 1905.

Manuals of the Japanese Army—Infantry Training. Part II. (Provisional), 1907. The Combat. Translated by the General Staff. 45 pp. 12mo. London, 1908. Stationery Office. 3*d*.

The new Japanese Infantry Training Manual is based on the German regulations and on the lessons of the war in Manchuria. At the close of that campaign a committee was appointed to draw up a list of the alterations which it was desirable to make in the regulations, and their recommendations as regards infantry training are embodied in the new manual which has been prepared by the Toyama Tactical School.

The book is divided into an introduction and two parts, of which only the second part, dealing with the combat, has been translated and published in the pamphlet under review. The introduction lays special stress on the necessity of maintaining strict discipline. It also states that in war simple measures alone can be expected to lead to success, and that therefore a few simple forms will suffice, which, however, must be thoroughly practised and employed with complete surety.

A short note on Part I. of the Infantry Training has been inserted in the pamphlet, describing the various formations that are used. Their chief feature is their simplicity, everything which is not essential to the combat has been discarded.

Part II. is divided into an introduction which gives instructions for training troops for the combat, and two chapters, the first dealing with the general principles of the infantry attack and defence, and the second with the combat of the different units.

Introduction.—Stress is laid on the importance of the combat objective and upon combined action with other troops on the same alignment.

Night exercises are frequently to be carried out, in which the troops will be practised in arriving in order and without confusion at a prearranged point over every kind of ground.

The Russo-Japanese war has shown the advantage of hasty entrenchments, both in attack and defence, and it is now laid down that at exercises, when works cannot be constructed, plans and preparatory tasks for working parties should be carefully drawn up.

In all exercises, and throughout the whole period of training, a spirit of preference for the attack must be cultivated in the infantry.

It is recognised that the main objects of peace training are to cultivate the *moral* and to strengthen the discipline of the troops, and all effectual methods of achieving these objects are to be employed.

Chapter I.—It is a general principle that the infantry will always remain the chief factor in the fight. Great tenacity of purpose is required, and heavy sacrifices will be demanded.

The bayonet is effectual in deciding the victory, and must not be disregarded, whilst fire action is the main feature of the fight. Extended order is the formation usually employed in the infantry combat, and, as the difficulty of properly maintaining the direction is very great, it must be very carefully practised.

Sections are devoted to skirmishing, the battle front, duties of commanders and men, the attack (including encounter actions and the attack of prepared positions), the defence, action after a successful attack, and action in connection with the other arms.

Chapter II.—Chapter II. is a short one, and deals with the combat of the different units.

The company is the skirmishing unit when supported on both flanks; a company should not, as a rule, extend more than one section in the firing line.

The frontage of a battalion should not exceed that of three companies. The battalion commander should allot a task to each company and determine when it is to take part in the combat.

The regiment is especially suited for independently carrying out the various duties of war. The regimental commander will allot a task to each battalion. In the defence he should give the frontage to be occupied by each battalion, and in the attack he should indicate the objective.

In the combat of the brigade, the best method of arranging as to distribution is to place the regiments on the same alignment, allot their respective duties, and direct each regiment, when necessary, to join the combat. The frontage of a brigade, on first deployment, should not exceed 1,500 metres (1,635 yards).

Notes by an Infantry Soldier. The Training of Infantry (Causeries d'un fantassin. L'instruction). By Lieut.-Col. Guionic, 73rd Infantry Regiment. 254 pp., with 7 diagrams. 8vo. Paris, 1907. Lavauzelle. 3/4.

An interesting work on the training of infantry. The subject, is, of course, discussed with reference to the peculiar characteristics of the French army, and much therefore does not apply to our own conditions. There are, however, numerous lessons and suggestions which are of equal value to ourselves, and British officers with a fair knowledge of French will find a good deal of useful and instructive matter.

Among the subjects to which the author devotes special attention, are musketry instruction, fire discipline, march discipline, and night attacks. After dealing with schemes and tactical exercises, Colonel Guionic brings his book to a conclusion with a chapter on the instruction of officers, in which he emphasises the importance of study and theoretical knowledge, to supplement practical experience; he insists on the necessity of frequent field exercises, followed by discussions, the latter to be made as free as is consistent with discipline. Lastly, he urges the value of visits to battlefields (especially those of 1870-71), under the guidance of competent lecturers.

The Psychology of the Infantry Combat (Psychologie du combat de l'infanterie). By Lieut. Loque, 110th Regiment of Infantry. 80 pp. 8vo. Paris, 1908. Lavauzelle. 1/3.

This volume is a collection of lectures delivered by the author to the officers of his regiment. His object is to emphasise the immense power of the moral factor in war, and to show the necessity of the strictest discipline. He argues that men are not naturally brave, that what we call courage is merely fear successfully overcome, and that most men frequently yield to the influence of terror. He urges the importance of national training, and says, very truly, that the qualities of a people are exactly reflected in the infantry of the national army. His views are illustrated by apposite extracts from famous military writers, and the matter is well arranged and forms a readable and instructive little book, of special interest for infantry officers.

The Principles and Direction of Brigade and Division Manœuvres, with a Practical Example (Brigade- und Divisionsmanöver in Anlage und Leitung mit einem Beispiel aus der Praxis). By Major Ludendorff, Great General Staff. 183 pp., with map. 8vo. Berlin, 1908. Mittler. 4/-.

The book is arranged in two parts and deals in detail with the general question of manœuvres. In Part I., the object of, and the influence of peace conditions on manœuvres are discussed. The preparation of schemes is entered into, the method of conducting the operations is considered, and questions of billets, bivouacs, supply and transport are dealt with.

In Part II., the work to be carried out prior to the commencement of division manœuvres, such as interviewing landowners, fixing dates and places of concentration of the troops, preparation of maps and standing orders, arrangements for supply, detail of commanders, umpires, and recording officers, medical, veterinary, police and postal arrangements, compensation committees, and so forth, are considered in detail.

The book concludes with an example of the manœuvres of a division spread over five days.

(To be continued.)

JOURNAL

OF THE

Royal United Service Institution,

WHITEHALL, S.W.

PUBLISHED UNDER THE AUTHORITY OF THE COUNCIL.

Authors alone are responsible for the contents of their respective Papers.

VOL. LII.

JANUARY TO JUNE, 1908.

LONDON:

J. J. KELIHER & CO., LIMITED, 33, KING WILLIAM STREET, E.C.,
AND 32, NEW BRIDGE STREET, E.C.

1908.

[*Entered at Stationers' Hall.* *All rights reserved.*]

INDEX.

JANUARY TO JUNE, 1908.

PAGE

ALBUERA, Monument Commemorating the Battle of. Erected in the Town of Albuera, Description of the. Major John H. Leslie R.A. (Retired List) 305

ARBITRATION, International. Translated by permission from the *Marine Rundschau* 76

ARTILLERY, French and German Field: A Comparison. Lieut.-General H. Rohne. Translated by permission from the *Jahrbücher für die Deutsche Armée und Marine* 355

ARTILLERY in the Manchurian Campaign. Captain B. Vincent, R.F.A., late Attaché to the 1st Japanese Army in Manchuria. (*Lecture.*) 28

ESSAY, Gold Medal; subject: "The Best Way of Organising and Maintaining a Reserve of Efficient British Officers for the British Forces at Home and in India, including the Indian Army." Lieut.-Colonel A. F. Mockler-Ferryman, Reserve of Officers, Oxfordshire L.I. 433

Ditto, *Second Prize.* Lieut.-Colonel C. E. D. Telfer-Smollett, late Worcester Regiment 609

Ditto, *Third Prize.* Captain C. A. L. Yate, K.O. (Yorkshire L.I.), General Staff 751

FINANCE as a Military Science, Army. Captain T. Ormsby, Army Pay Department 836

HAGUE Conference and Naval War, The. Rev. T. C. Lawrence, M.A., LL.D., Admiralty Lecturer on International Law at the Royal Naval War College, Portsmouth. (*Lecture.*) 479

HORSE Soldier in the Twentieth Century, The Use of the. Captain C. W. Battine, late 15th Hussars. (*Lecture.*) 309

HORSE Supply and our Military Requirements, The National. (*Discussion.*) 510

KAIKOSHA, The. ("Japanese Officers' Club.") Translated from the "Kaikosha Kiji" (Officers' Club Journal), by Captain E. F. Calthrop, R.F.A. Communicated by the General Staff ... 847

MAP Reference. Major J. A. S. Tulloch, R.E. 247

MOBILITY: Its Influence on Strategy. Colonel F. N. Maude, C.B., late R.E. (*Lecture.*) 196

NIGHT Operations. Brig.-General Sir H. S. Rawlinson, Bart., C.V.O., C.B., *p.s.c.* (*Lecture.*) 804

NORTH Sea, Strategical Position in the, as Strengthened by the "Forth and Clyde Battle-ship Canal" and the "Dover and Sangatte Tube Railway." Vice-Admiral Sir Charles Campbell, K.C.M.G., C.B., D.S.O. (*Lecture.*) 3

PANAMA Canal, Strategical and Economical Effect of the Opening of the. Archibald R. Colquhoun, Esq., Gold Medallist, Royal Geographical Society. (*Lecture.*) 175

PAGE

PREPARATION and Development of an Action, French and German Tendencies with regard to the. Captain F. Culmann, French General Staff. Translated for the General Staff from the *Revue Militaire Générale* 690

STAFF Tours. Brig.-General H. H. Wilson, D.S.O., *p.s.c.*, Commandant of the Staff College. (*Lecture.*) 661

TACTICS, Company and Battalion, and the Employment of Artillery in Battle, Notes upon. Based on the Experiences of the Russo-Japanese War of 1904-5. Captain A. Degtyarev. Translated from the *Voïennyi Sbórnik*. Communicated by the General Staff, War Office, 1907 ... ... 64, 224, 331

Ditto, Studies in Applied. Cavalry in Battle (15th and 16th August, 1870.) P. Lehautcourt. Translated by permission from *Le Journal des Sciences Militaires*, by Major E. Makins, D.S.O., 1st Royal Dragoons 236, 345, 532, 680, 828

TELEGRAPHY, Submarine. Charles Bright, F.R.S.E., M.I.E.E. (*Lecture.*) 368

TRAINING of the Troops during 1907. General Sir Ian Hamilton, K.C.B., D.S.O., Commanding-in-Chief, Southern Command... 83

WARS of the Turks with the Germans. Lieut.-General F. H. Tyrrell, late Indian Army 53, 208

CORRESPONDENCE :—

NIGHT Operations; by Major L. C. M. Blacker, late R.A. 129

POULSEN Wave in Wireless Telegraphy; by T. Miller Maguire ... 282

THE Man who Must Shoot; by Colonel E. E. Carr, late D.S. of Musketry, N.E. District 124

THE *Quid Pro Quo;* by "Namdarh" 286

SECRETARY'S Notes 1, 173, 303, 431, 607, 749

NAVAL Notes 97, 252, 397, 539, 704, 855

MILITARY Notes 112, 266, 407, 549, 716, 868

NAVAL and Military Calendar 129, 290, 418, 560, 736, 880

CONTENTS of Foreign Periodicals 130, 291, 418, 560, 737, 881

NOTICES of Books 136, 298, 426, 568, 745, 888

PRINCIPAL Additions to Library 138, 300, 427, 569, 746, 890

RECENT Publications of Military Interest; compiled by the General Staff, War Office, January, 1908. Communicated by the General Staff 139

Ditto, April, 1908 572

FRONTISPIECES :—

TROPHY of Weapons around main door, south end, R.U.S.I. Museum ... ... Opposite 1

UNITED STATES First-class Cruiser "West Virginia" ... ,, 173

MONUMENT at Albuera to Commemorate the Battle of Albuera, 16th May, 1811 ... ... ,, 303

UNITED States First-class Battle-ship "Rhode Island" ... ,, 431

GEOGRAPHICAL Plan of the Island and Forts of St. Helena in 1815 ... ... ,, 607

GERMAN First-class Battle-ship "Kaiser Barbarossa" ... ,, 749

LIST OF AUTHORS AND TRANSLATORS.

PAGE

ANON. (International Arbitration) 76
,, (French and German Field Artillery: A Comparison) ... 355
BATTINE, Captain C. W., late 15th Hussars. (Use of the Horse Soldier in the Twentieth Century) 309
BLACKER, Major L. C. M., late R.A. (Night Operations.) (*Letter*) 129
BRIGHT, Charles, F.R.S.E., M.I.E.E. (Submarine Telegraphy) ... 368
CALTHROP, Captain E. F., R.F.A. (The Kaikosha) 847
CAMPBELL, Vice-Admiral Sir Charles, K.C.M.G., C.B., D.S.O. (Strategical Position in the North Sea) 3
CARR, Colonel E. E., late D.S. of Musketry. (The Man who Must Shoot.) (*Letter*) 124
COLQUHOUN, Archibald R., Esq. (Opening of the Panama Canal) ... 175
CULMANN, Captain F., French General Staff. (Preparation and Development of an Action) 690
DEGTYAREV, Captain A. (Company and Battalion Tactics) 64, 224, 331
DONOUGHMORE, Earl of. (The National Horse Supply and our Military Requirements) 510
HAMILTON, General Sir Ian, K.C.B., D.S.O. (Training of the Troops during 1907) 83
LAWRENCE, Rev. T. C., M.A., LL.D. (The Hague Conference and Naval War) 479
LEHAUTCOURT, P. (Studies in Applied Tactics) 236, 345, 532, 680, 828
LESLIE, Major John H., R.A. (Monument Commemorating the Battle of Albuera) 305
MAKINS, Major E., D.S.O., 1st Royal Dragoons. (Studies in Applied Tactics) 236, 345, 532, 680, 828
MAUDE, Captain F. N., C.B., late R.E. (Mobility: Its Influence on Strategy) 196
MILLER MAGUIRE, T. (Poulson Wave in Wireless Telegraphy.) (*Letter*) 282
MOCKLER-FERRYMAN, Lieut.-Colonel A. F. (Gold Medal Prize Essay) 433
"NAMDARH." (The *Quïd Pro Quo.*) (*Letter*) 286
ORMSBY, Captain T., Army Pay Department. (Army Finance as a Military Science) 836
RAWLINSON, Brig.-General Sir H. S., Bart., C.V.O., C.B. (Night Operations) 804
ROHNE, Lieut.-General H. (French and German Field Artillery: A Comparison) 355
TELFER-SMOLLETT, Lieut.-Colonel C. E. D. (Second Prize Essay)... 609
TULLOCH, Major J. A. S., R.E. (Map Reference) 247
TYRRELL, Lieut.-General F. H. (Wars of the Turks with the Germans) 53, 208
WILSON, Brig.-General H. H., D.S.O. (Staff Tours) 661
VINCENT, Captain B., R.F.A. (Artillery in the Manchurian Campaign) 28
YATE, Captain C. A. L., General Staff. (Third Prize Essay) 751

TELEPHONE: 4430, GERRARD. MILICODE USED.
TELEGRAMS: CAPTAINCY, LONDON.

HAWKES & COMPANY, Ltd.

14, PICCADILLY, LONDON,

Military and Civil Tailors and Outfitters,

HELMET, CAP AND ACCOUTREMENT MAKERS.

Original Manufacturers of the Cork Patent Helmet.

ARMY TUTORS.

CAPTAIN GALL
AND
MR. GLADSTONE, M.A. (Oxon.)
(Late Captain Gall)

90a, GLOUCESTER ROAD, SOUTH KENSINGTON.

Latest Successes—
MILITIA COMPETITIVE.

MARCH, 1907—2nd and 45th Infantry.
OCTOBER, 1906—First place on List, also 3rd, 11th, and 35th places.
MARCH, 1906 — First Artillery and NINE other places.

SANDHURST, 1907—25th place.
PROMOTION—In 1906 all Candidates passed.
ORDNANCE COLLEGE—4th place.
ARMY QUALIFYING—All passed.

WORK ALWAYS GOING ON.

Preparation
By Lectures or Correspondence.

Telephone—2485 Kensington.

JUST PUBLISHED.
Price 2s. 6d. net.
Postage 3d. extra.

"WEAPONS"

Being a Brief Discourse on Hand-Weapons other than Fire Arms.

BY

B. E. Sargeaunt

(Assistant Curator, Royal United Service Museum, Whitehall).

C. GILBERT-WOOD,
Arundel Street, Strand, W.C.

SCHOOL OUTFITS

.. AT ..

Moderate Charges

Suits
Overcoats
Shirts
Underwear
Boots
Hats
Hose
Trunks, &c.

FROM

SAMUEL BROTHERS, LTD.,
65 & 67, Ludgate Hill, London, E.C.
ESTABLISHED SEVENTY YEARS.

Assortments *forwarded on approval to any part of the country.*
Appointments *kept in London & Suburbs free of charge.*
Illustrated Catalogue *and Patterns post free.*
The "Wear-Resisting" Fabrics (Regd.)—*Speciality for Boys' Hard Wear*

All APPLICATIONS for ADVERTISEMENT Space in THIS JOURNAL

.. SHOULD BE MADE TO ..

The Sole Advertisement Contractor,

C. GILBERT-WOOD, F.R.G.S.,

DACRE HOUSE, and
GRANVILLE HOUSE,
ARUNDEL STREET,
STRAND, LONDON, W.C.

TELEPHONES—4680 Gerrard.
TELEGRAMS—"Gilberwood, London."

OFFICIAL ACCOUNT OF THE

SECOND AFGHAN WAR

1878-1880.

PRODUCED IN THE INTELLIGENCE BRANCH, ARMY HEADQUARTERS, INDIA.

ABRIDGED OFFICIAL ACCOUNT.

With numerous Maps and Illustrations. Medium 8vo. 21s. net.

"Will be eagerly read by all interested in the preservation of our Indian Empire, and by none more carefully than by British Officers. . . . The book is founded on the best possible information, and the maps and illustrations are quite good. There are valuable appendices, and an index."—*The Globe.*

JOHN MURRAY, ALBEMARLE STREET, W.

THE

Cavalry Journal

Published by Authority of the Army Council, and under the Direction of the Commandant of the Cavalry School.

Published Quarterly, Price 2/6 net. Postage 4d.

NOW READY. No. II.—JULY, 1908. NOW READY.

CONTENTS.

FRONTISPIECE. Major-General AKIYAMA, Inspector-General of Cavalry, Japanese.

PRECIS OF A TRANSLATION, BY CAPTAIN R. A. STEEL, 17TH CAVALRY, OF THE JAPANESE CAVALRY TRAINING, 1907. By Colonel W. H. Birkbeck, C.B., C.M.G.

FAMOUS LEADERS OF CAVALRY: SEYDLITZ. By Colonel H. de B. de Lisle, C.B., D.S.O., 1st Royal Dragoons (Illustrated).

WIRELESS TELEGRAPHY FOR CAVALRY USE. By Major E. G. Godfrey-Faussett, R.E. (Illustrated).

THE FRENCH CAVALRY SCHOOL. By Major G. T. M. Bridges, D.S.O., R.A. (Illustrated).

IRREGULAR TROOPS IN THE FIELD. By Major-General E. C. Bethune, C.B.

NIGHT OPERATIONS. By Colonel J. Vaughan, D.S.O., 10th Hussars (with plan).

THE PROVISION OF HORSES FOR THE ARMY IN WAR. By Colonel W. H. Birkbeck, C.B., C.M.G. (Illustrated).

PETAWAWA CAMP. By Lieut.-Colonel Victor A. S. Williams, A.D.C., Inspector of Cavalry, Canadian Forces.

THE KURDISH MILITIA CAVALRY. By Major F. R. Maunsell, C.M.G., R.A. (Illustrated).

CYCLISTS IN CONJUNCTION WITH CAVALRY. By Captain A. H. Trapmann, 23th Bn. County of London (Cyclist) Regiment.

SOME NOTES ON FIELD TROOPS. ROYAL ENGINEERS AND THEIR USE. By Captain E. S. Sandys, R.E.

FRENCH CAVALRY—REGULAR AND IRREGULAR—IN MOROCCO. By Colonel D. F. Lewis, C.B. (with plans).

PICKETING GEAR FOR CAVALRY. By Brig.-General H. D. Fanshawe (Illustrated).

THE NEW CAVALRY PIONEER INSTRUCTION FOR THE GERMAN ARMY. By Captain C. W. Singer, R.E. (Illustrated).

THE YEOMANRY. By Colonel Lord Harris, K.C.S.I., K.C.I.E.

MOUNTED COMPETITIONS AT THE ROYAL NAVAL AND MILITARY TOURNAMENT. By Major R. M. Poore, D.S.O., 7th Hussars (Illustrated).

THE NEW GERMAN REGULATIONS RELATING TO RECONNAISSANCE AND PROTECTION. By Lieut. B. Stewart, West Kent (Q.O.) Yeomanry.

THE PROTECTION OF BIG GAME. By Lieut.-Colonel J. W. Yardley.

NOTES (Illustrated). RECENT PUBLICATIONS.

OBITUARY CORRESPONDENCE.

SPORTING NOTES.

SUBSCRIPTIONS should be sent direct to :—
The Managing Editor at
THE ROYAL UNITED SERVICE INSTITUTION,
WHITEHALL, LONDON, S.W.
or Copies may be obtained by ALL Booksellers, Newsagents and Railway Booksellers, from
THE GILBERT-WOOD PRESS,
3 & 5, ARUNDEL STREET, STRAND, LONDON, W.C.
Telephone Nos. 4680 & 4680A Gerrard. Telegraphic Address:—"Gilberwood, London."

To Authors, Officers, &c.

Mr. C. GILBERT-WOOD (The Publisher of "The United Service Gazette," etc., etc.) is open to give expert advice on the Publication of NAVAL AND MILITARY BOOKS, and also to undertake the Printing, Binding, and Publishing of same.

For terms, write or call :-

THE GILBERT-WOOD PRESS,

Dacre House and Granville House, Arundel Street, Strand, London, W.C.,

Or phone 4680 Gerrard, or wire to "Gilberwood," London.

THE

ROYAL ENGINEERS JOURNAL.

This Journal contains Articles on engineering matters, both military, tecnnical and civil, and on general military topics. Transcripts and Notices from the technical publications of Foreign Armies are also contributed.

The Journal is issued free to all Members and Associate Members of the Royal Engineers Institute. All officers of the Royal Engineers (Regulars) serving and retired, are eligible for membership. The following may be Associate Members: Officers of the Royal Artillery, of the Home Militia and Volunteer Engineers; and of the Permanent, Militia, and Volunteer Engineers of all the Colonial Forces.

MONTHLY: PRICE 1s. 6d. Nett.

London:
C. GILBERT-WOOD, Arundel Street, W.C.

Chatham:
THE ROYAL ENGINEERS INSTITUTE.

THE
ROYAL WATERLOO
HOSPITAL
FOR CHILDREN AND WOMEN.
Founded A.D. 1816.

SPECIAL APPEAL COMMITTEE

Belfast Chambers, 156, Regent Street, W.

Vice-President: THE DUKE OF ARGYLL, K.T., etc.
Chairman: CAPT. H.S.H. PRINCE ALEXANDER OF TECK, G.C.V.O., D.S.O., etc.

100 BEDS AVAILABLE

But owing to insufficient Annual Income,

ONE WARD STILL UNOPENED.

About 40,000 Out-Patients Annually.

Any assistance, financial or otherwise, will be welcomed at the above offices, where the expenses are practically nil, as furniture is provided gratis, & work carried on by voluntary unpaid Helpers.

WILL YOU HELP US?

Kindly apply between 12 and 1 p.m. to
CAPT. J HOUSTON,
ORGANIZING
SECRETARY.

Connoisseurs of **COFFEE**

DRINK THE

RED WHITE & BLUE.

DELICIOUS FOR BREAKFAST & AFTER DINNER

In making, use LESS QUANTITY, it being much stronger than ordinary COFFEE.

JOSEPH TUCKER

Telephone: 2121 Dalston.
Telegrams: "Turbula, London."

Contractor to H.M. and the Dutch Governments.

Tents.
Sleeping Valises.
Sleeping Bags, Blankets, etc.
Portable Camp and Barrack Furniture.
Rifles, Revolvers and Cartridges.
Saddlery.
Scientific Instruments.
Mosquito Nets (a Speciality).
Field Kits.
Chop Boxes.
Kitchen Boxes.
Watertight Trunks.
Canteens.
Clothing of every Description.

Military Equipments.

SPECIALIST IN ALL REQUISITES REQUIRED FOR FOREIGN TRAVEL. ETC.

Military Men, Explorers, Miners, etc., should send for Illustrated Catalogue, 160 Pages.

DETAILED ESTIMATES AND ADVICE re CLIMATE, etc., FREE.

Expeditions completely Fitted Out and Provisioned for all Parts of the World.

79, NEWINGTON GREEN ROAD
LONDON, N.

JEROME SACCONE, LTD.,

GIBRALTAR, 33, Railway Street, CHATHAM, and 6, Bank Buildings, Elm Grove, Southsea, PORTSMOUTH.

WINE, SPIRIT and CIGAR MERCHANTS to the

ARMY AND NAVY.

Price Lists and Samples on Application.

Wines shipped FREIGHT FREE to any Port in the Mediterranean or HALF FREIGHT TO INDIA and the Cape.

TELEGRAPHIC ADDRESS:—
"SACCONE, GIBRALTAR"; "SACCONE, CHATHAM"; "SACCONE, PORTSMOUTH."

THE ADVERTISEMENT DEPARTMENT OF THIS JOURNAL IS CONDUCTED IN GILBERT-WOOD'S ADVERTISING OFFICES, DACRE HOUSE, ARUNDEL STREET, STRAND, LONDON, W.C., WHERE ALL COMMUNICATIONS SHOULD BE ADDRESSED.
TELEPHONE No. 4680 GERRARD.